

THE CONTRACT JOURNAL

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THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

No. 4,238 82nd YEAR

THURSDAY, SEPTEMBER 15, 1960

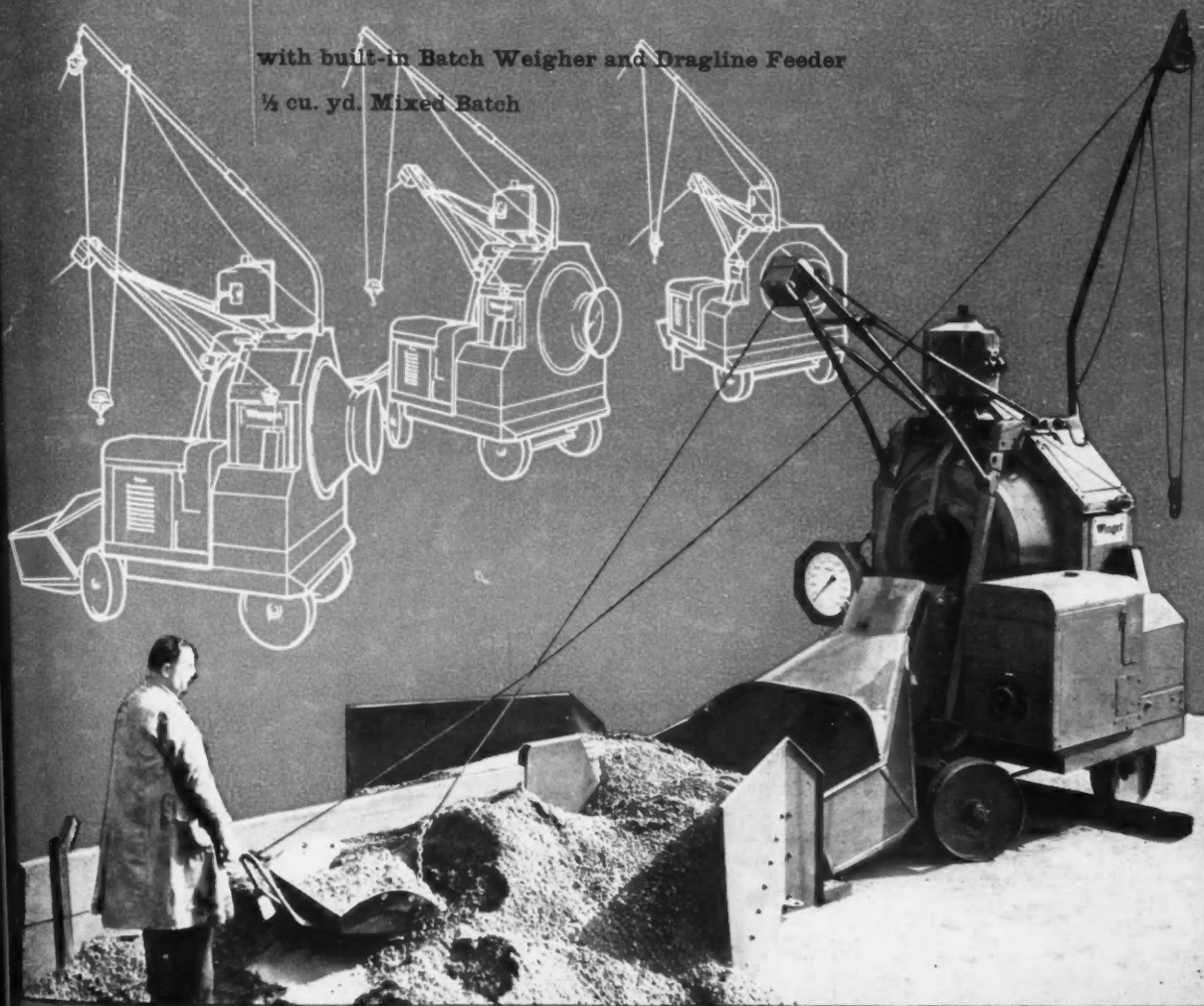
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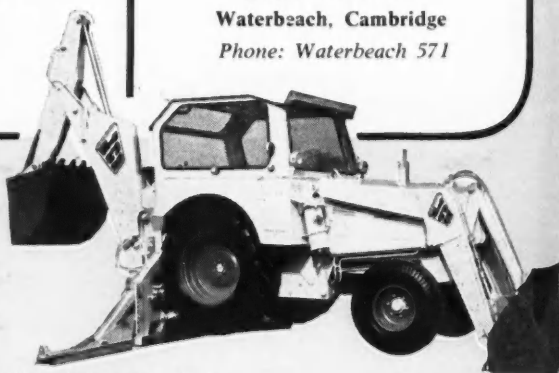
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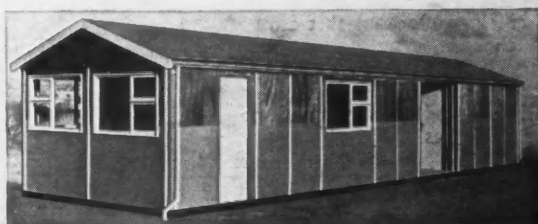


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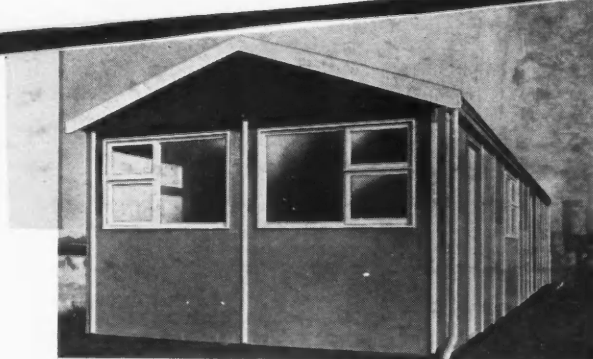
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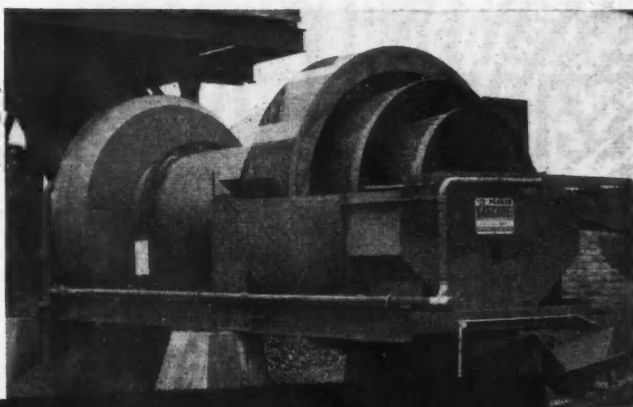


A Benford 18/12 mixer, discharging concrete into a 23 cwt. size Benford Dumper fitted with Type "A" Crane Skip. Note small labour force.

PHONE 1170
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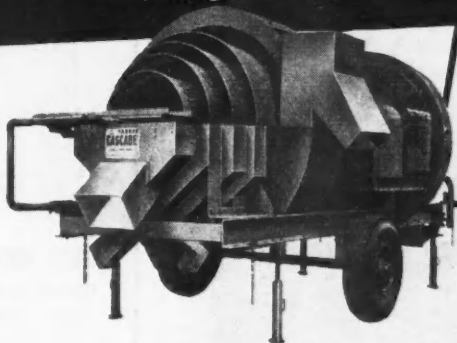
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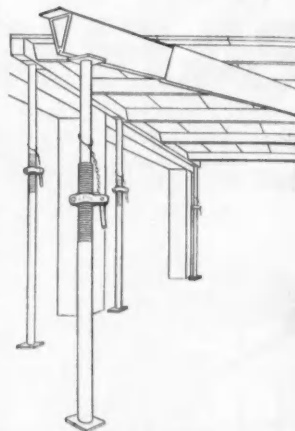
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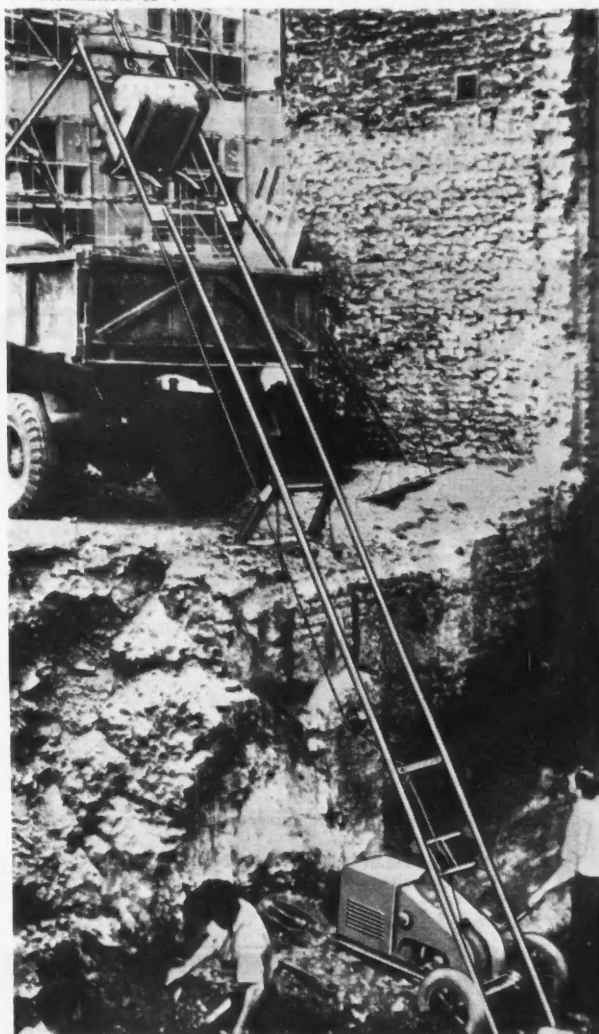
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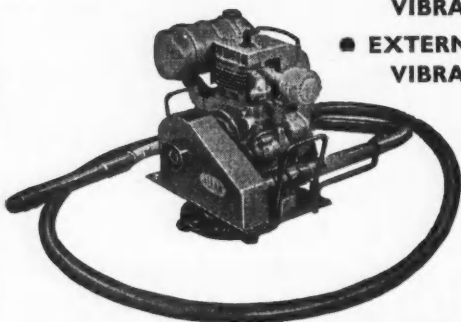
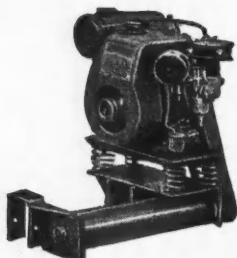


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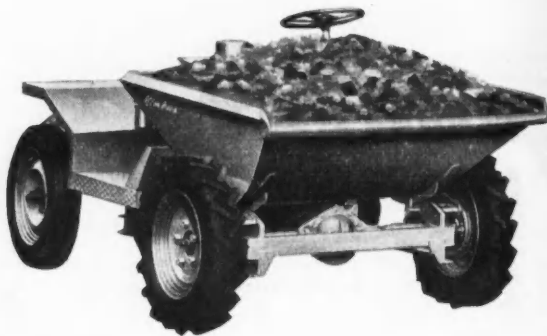
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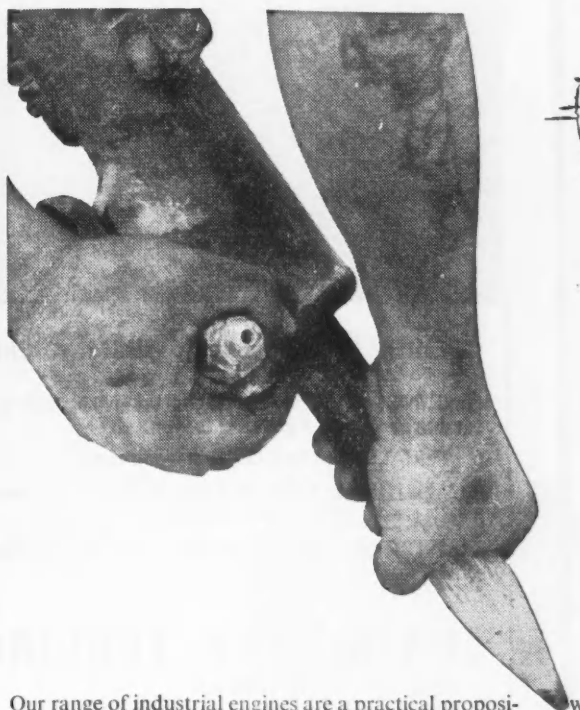
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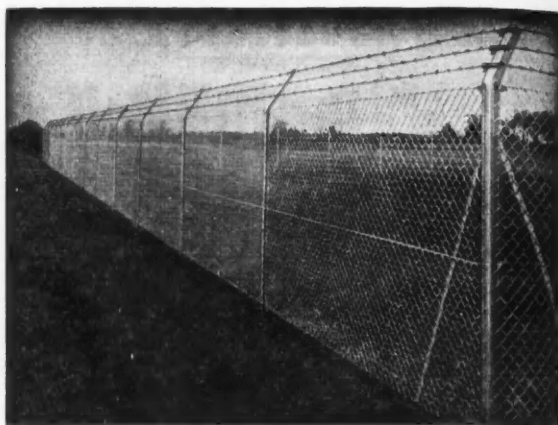
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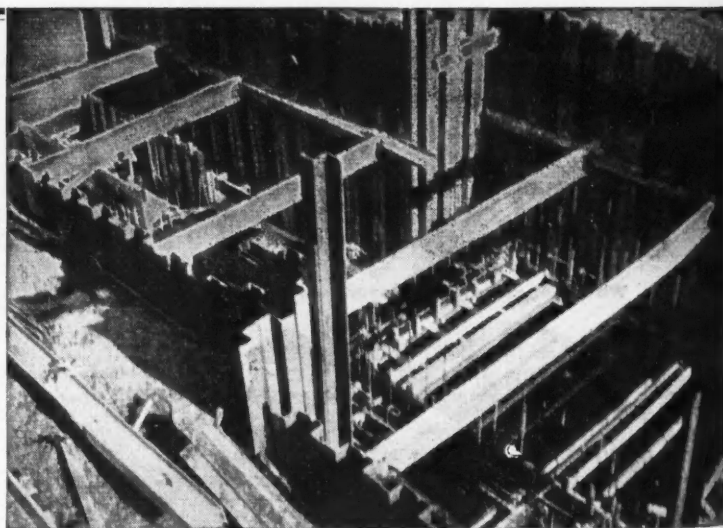
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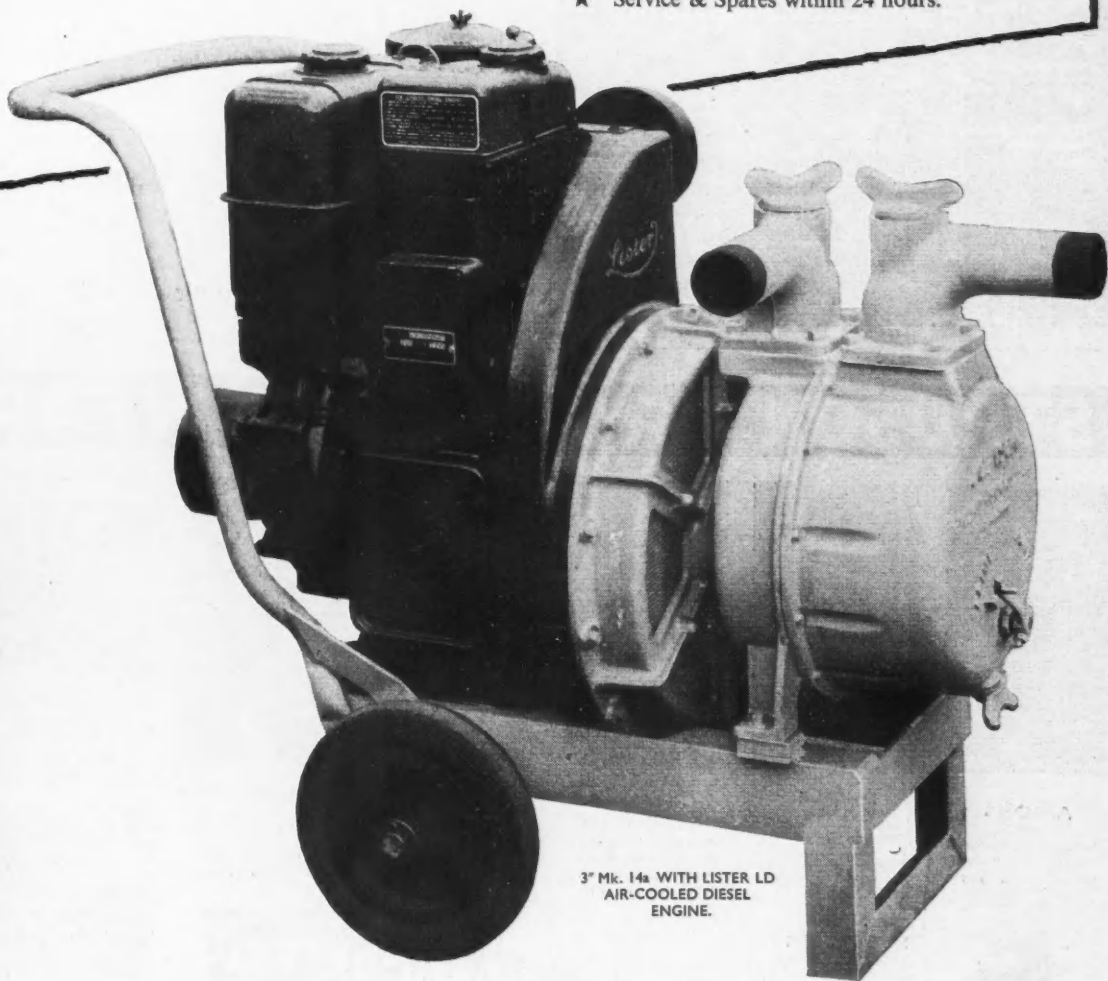
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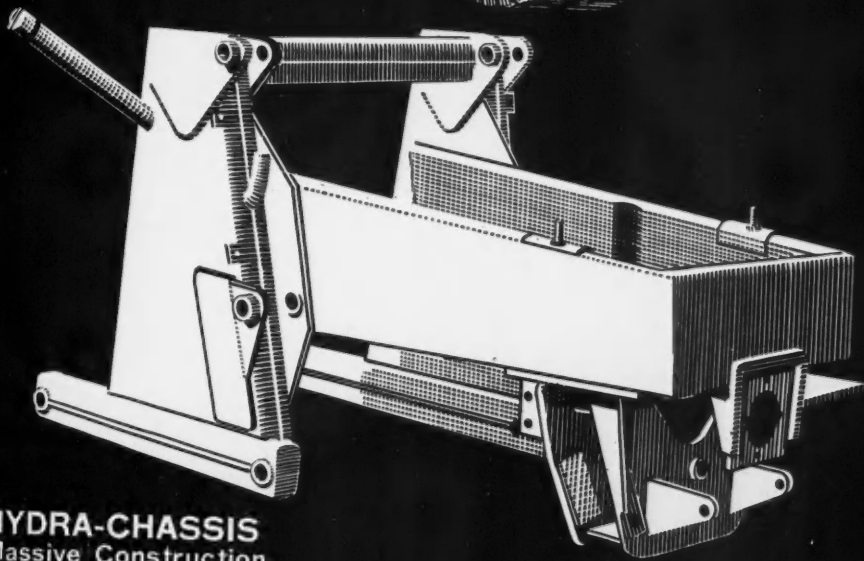
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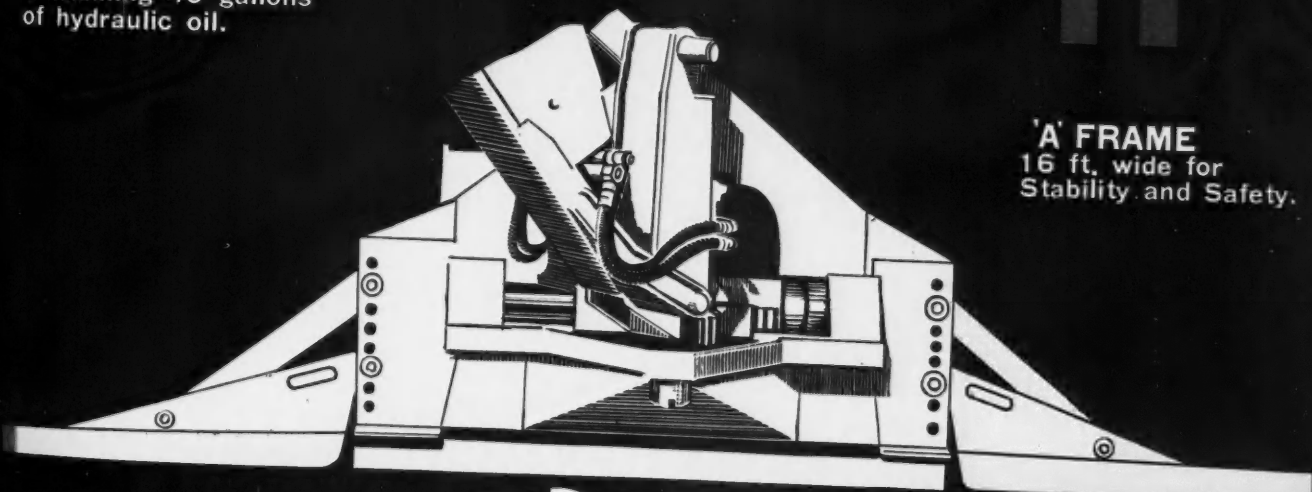
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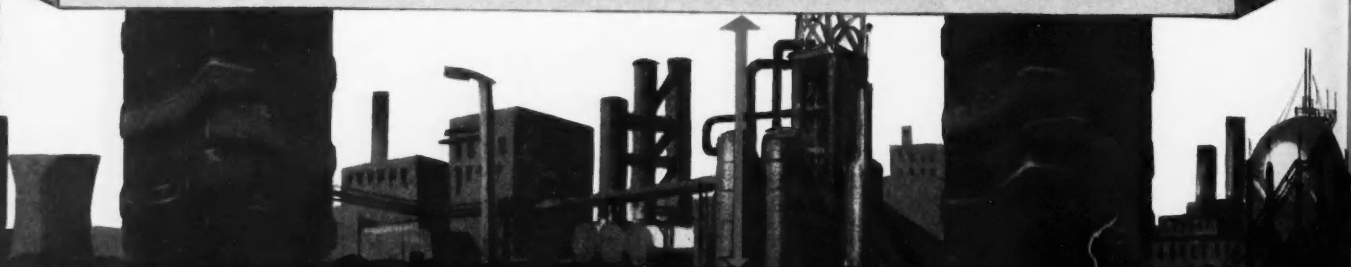
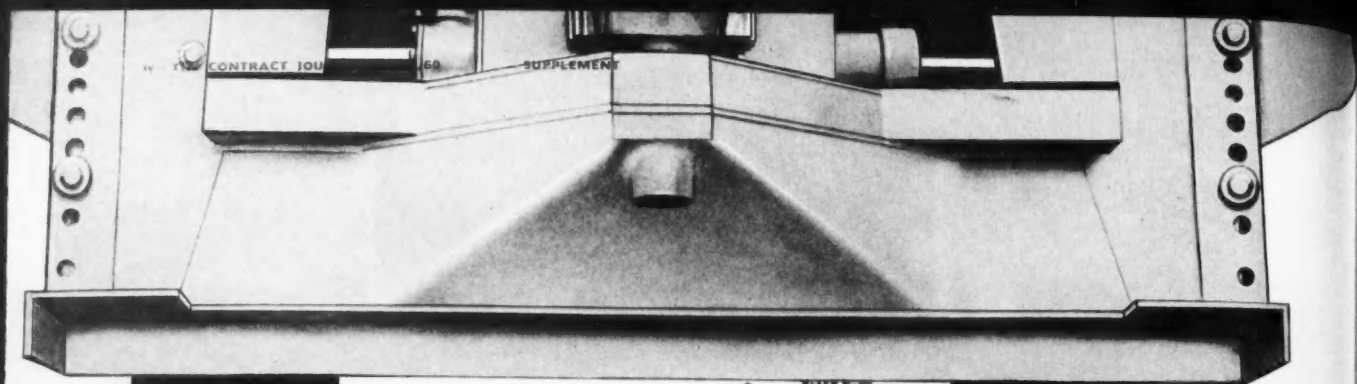
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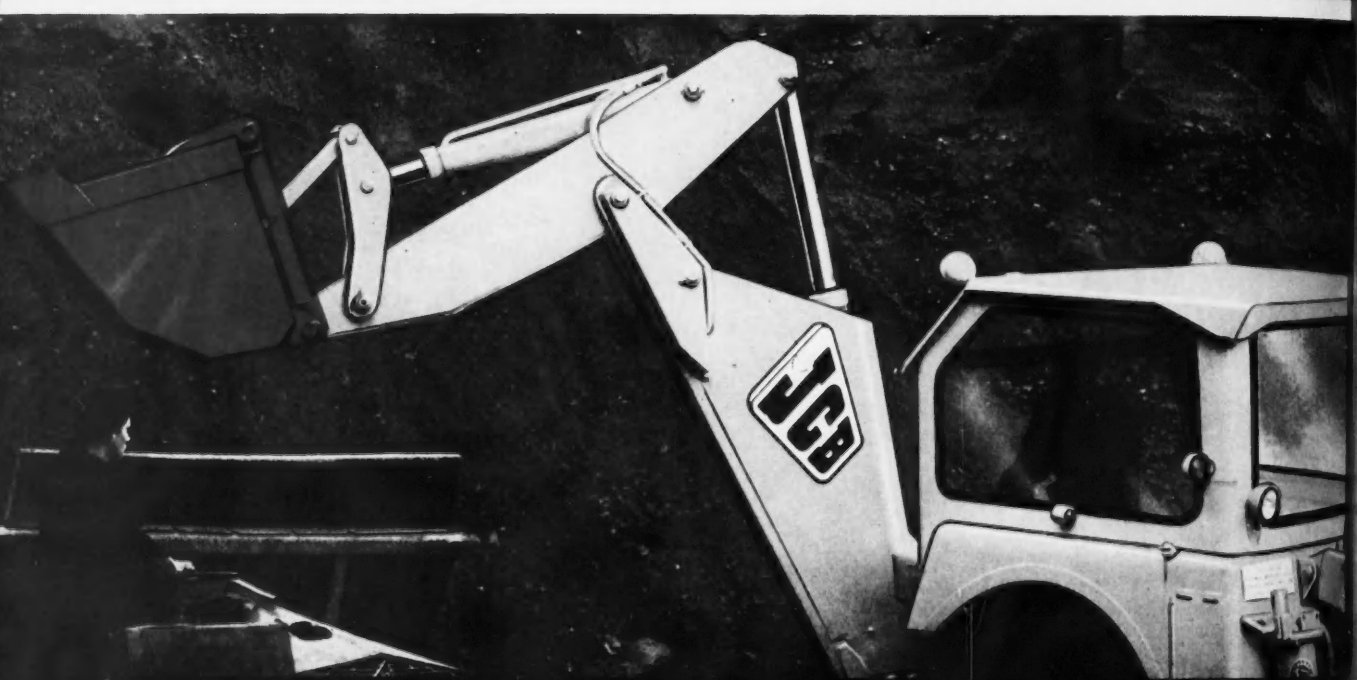


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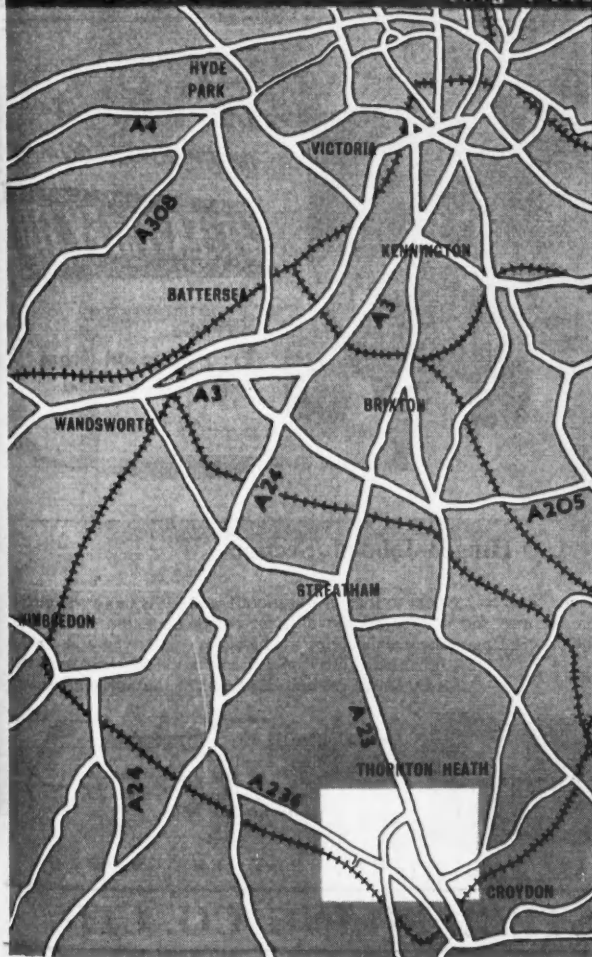
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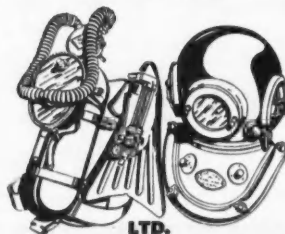
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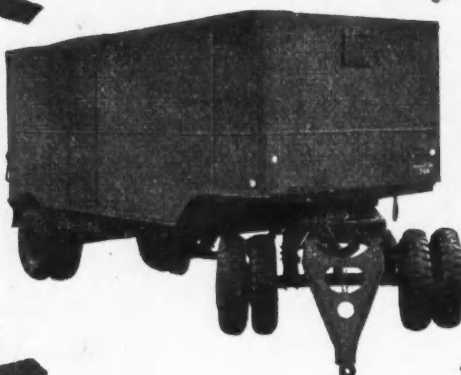
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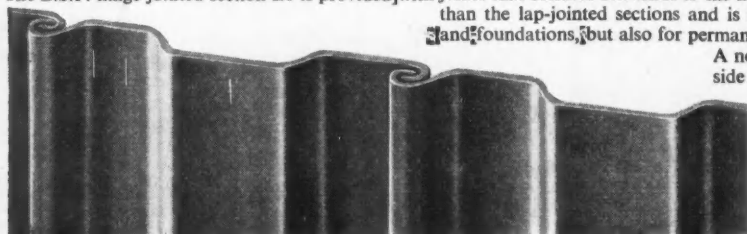
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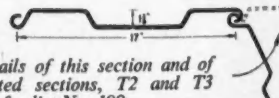
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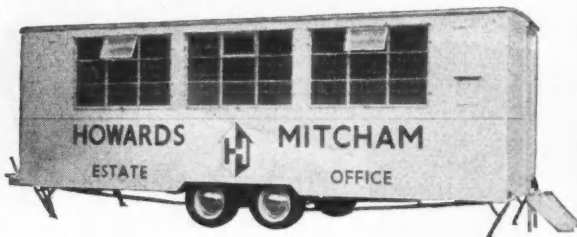
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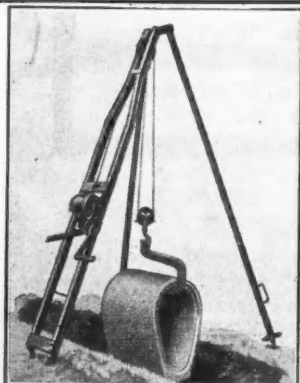
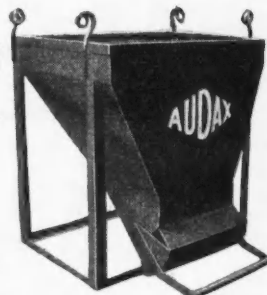
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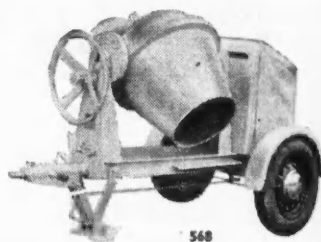
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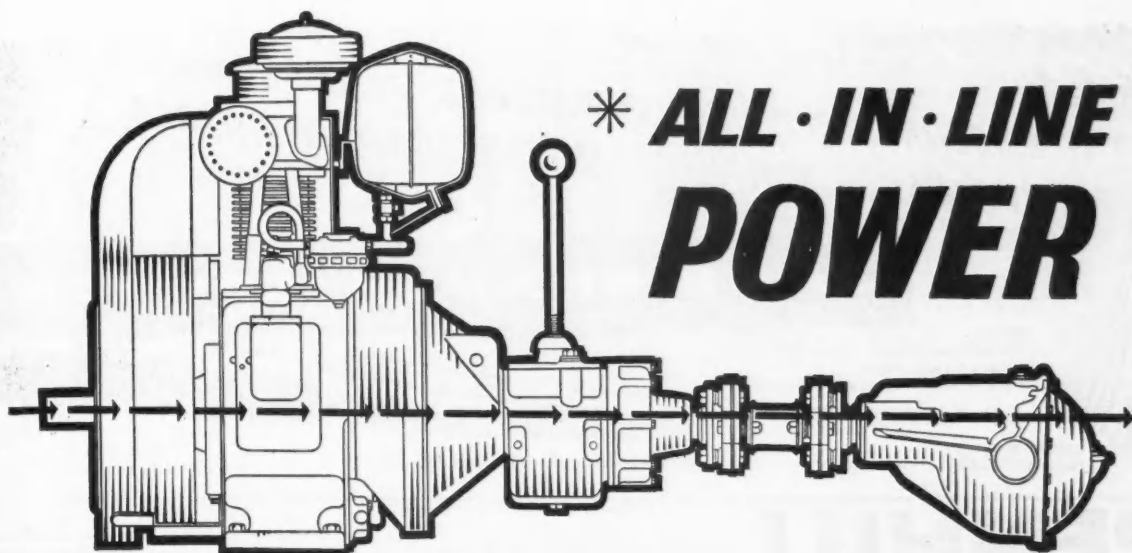
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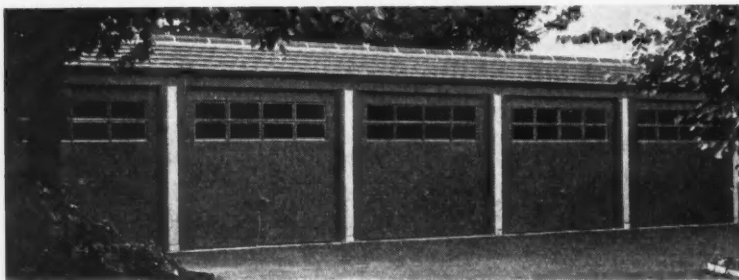
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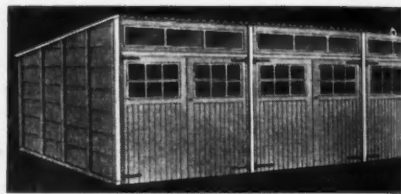
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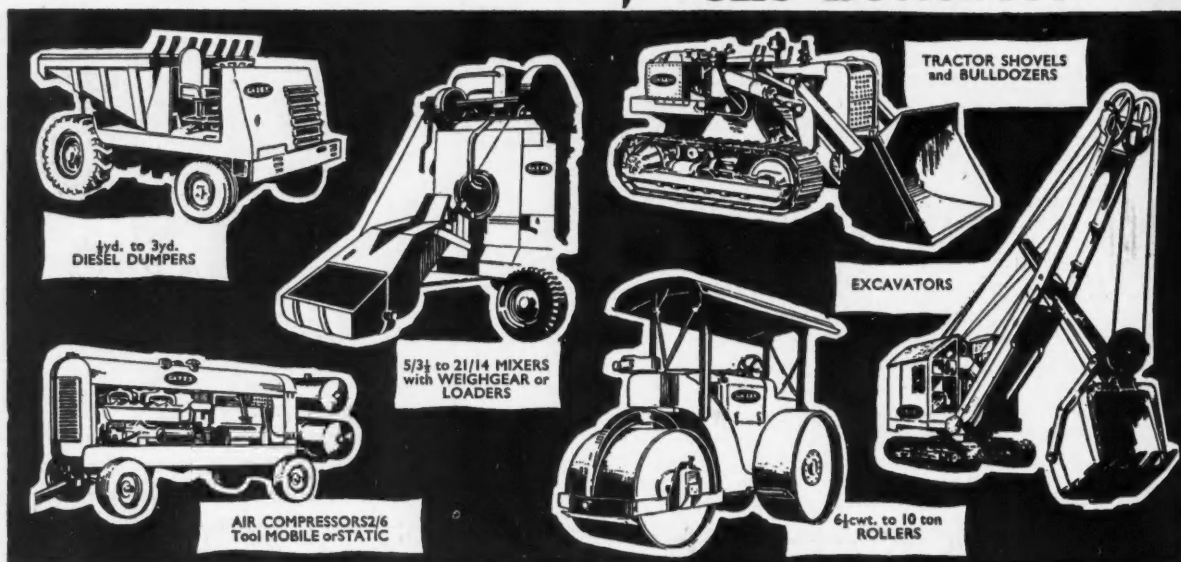
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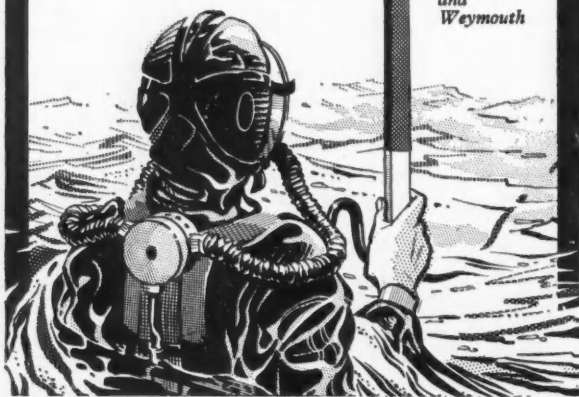
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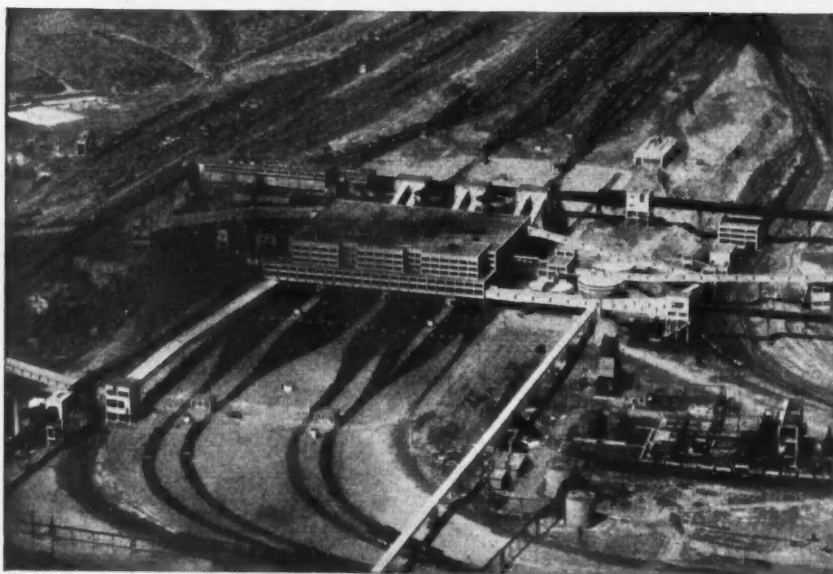
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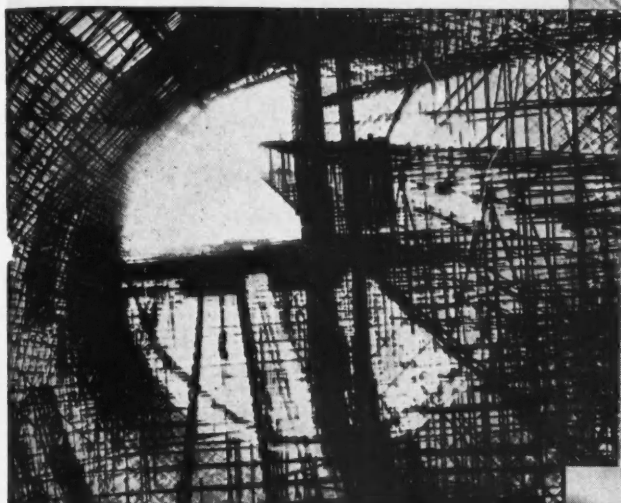
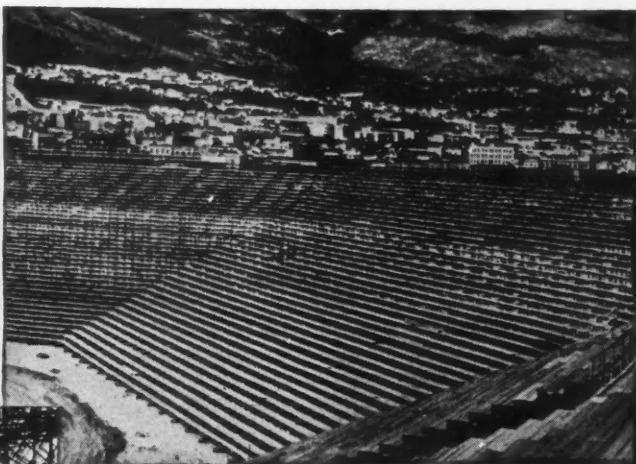
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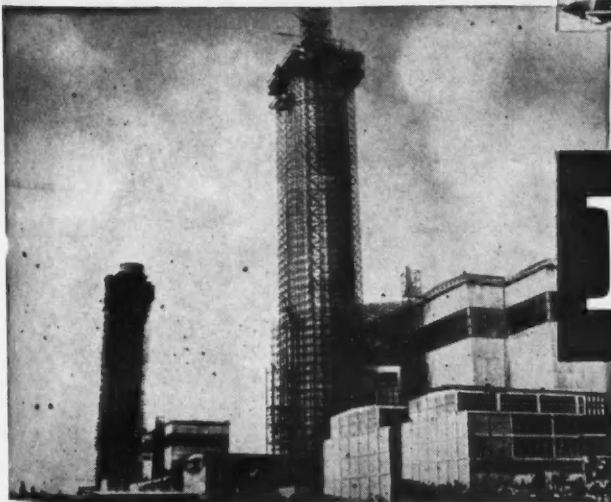
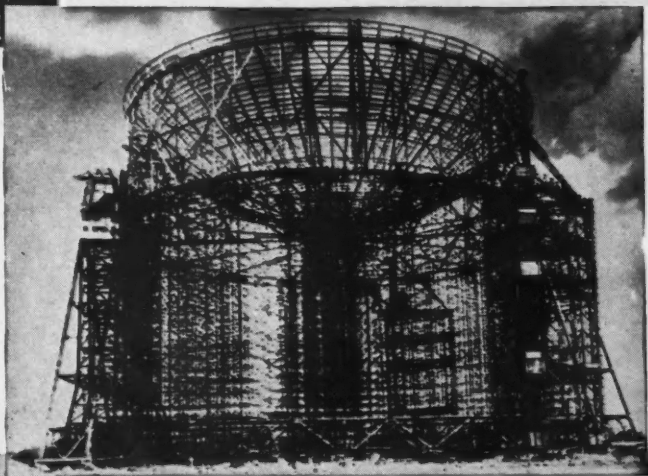
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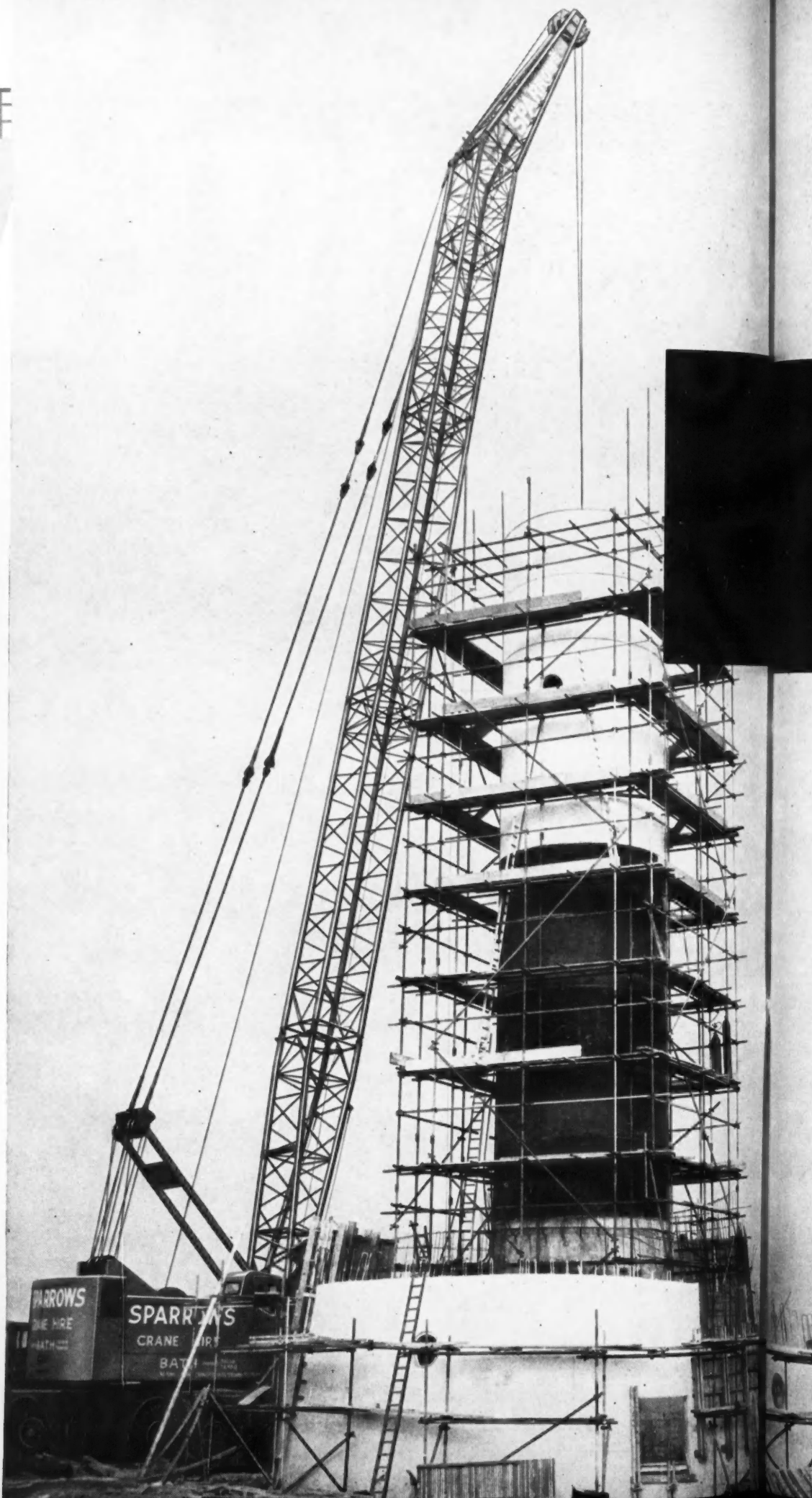


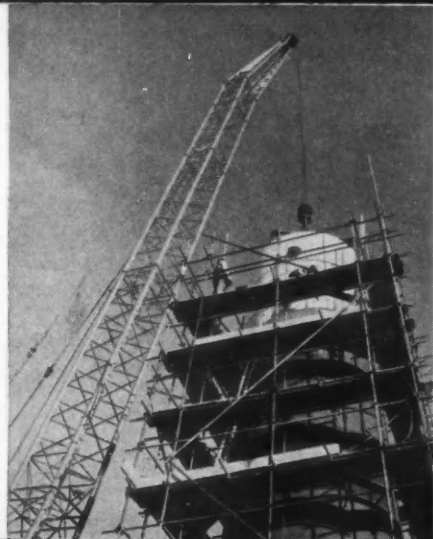
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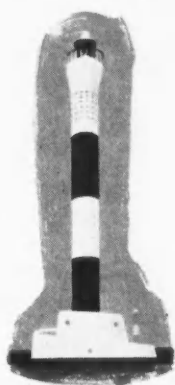
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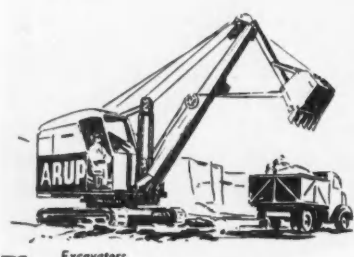
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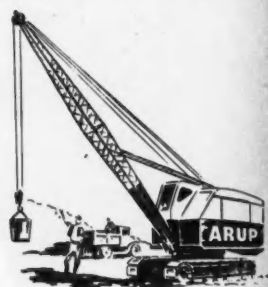
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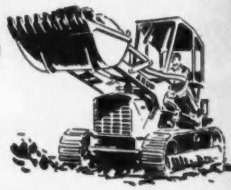


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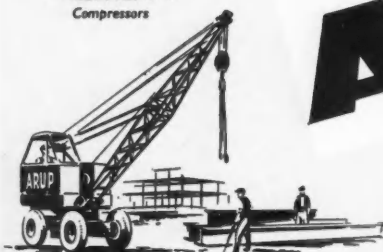


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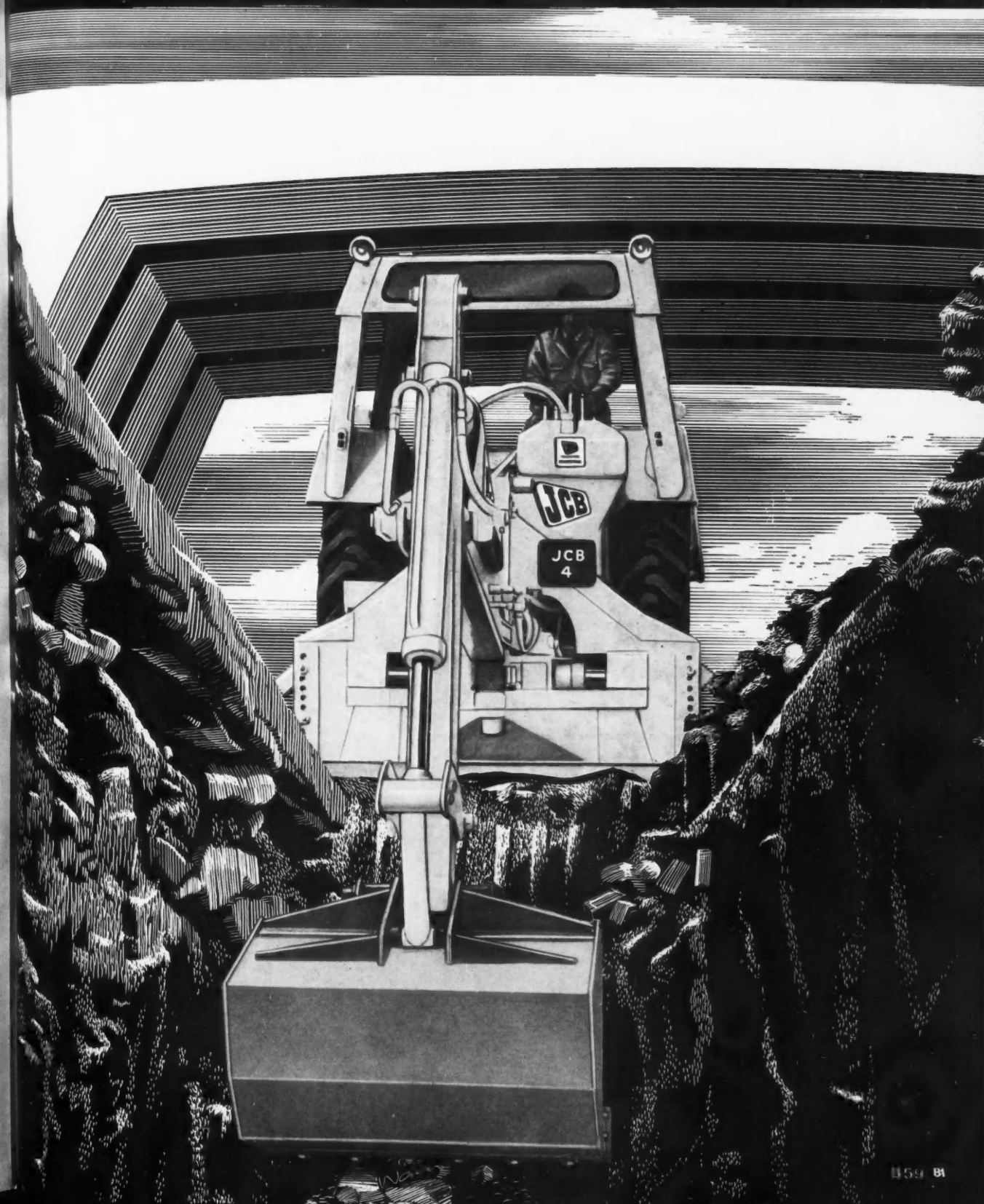
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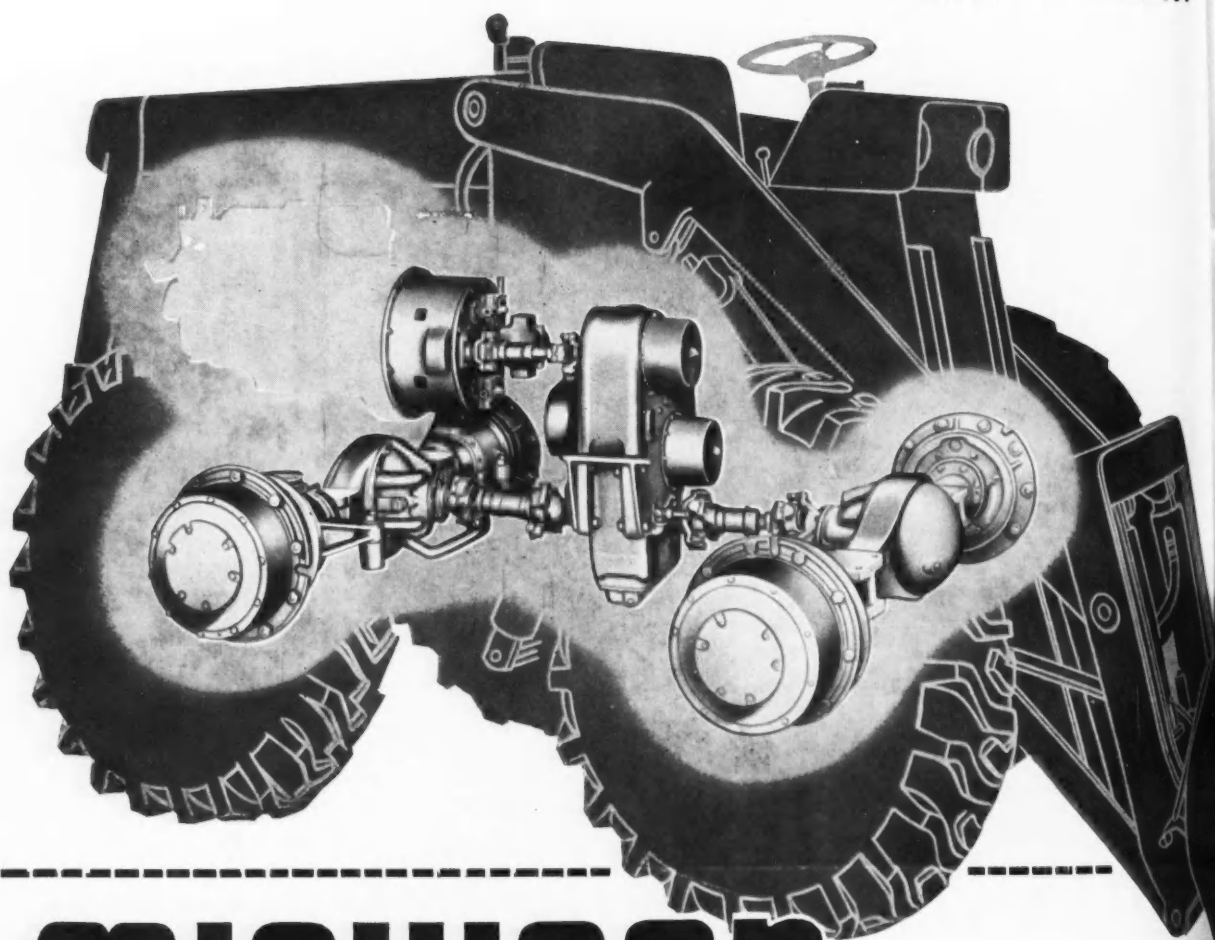


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The maintenance of Britain's beaches is a task which Coastal Authorities find especially difficult now, when overnight pollution from drifting waste oil may occur at any time. Restoration is a matter of urgency, and fast moving, high capacity tractor shovels are needed to disperse the coagulated oil, and to recover the surface. Few machines can work successfully in deep shingle, but fortunately the Michigan Tractor Shovel with its wide base high flotation rubber tyres, and four wheel drive, has proved eminently suitable.

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British built Michigans range from 62 to 262 horsepower Tractor Shovels and Dozers, with a high degree of interchangeability of components, plus built-in serviceability. There is a British built Michigan designed to meet your needs.



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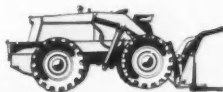
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Tractor Shovel



75A
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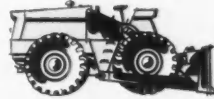
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Plus or Minus one per cent

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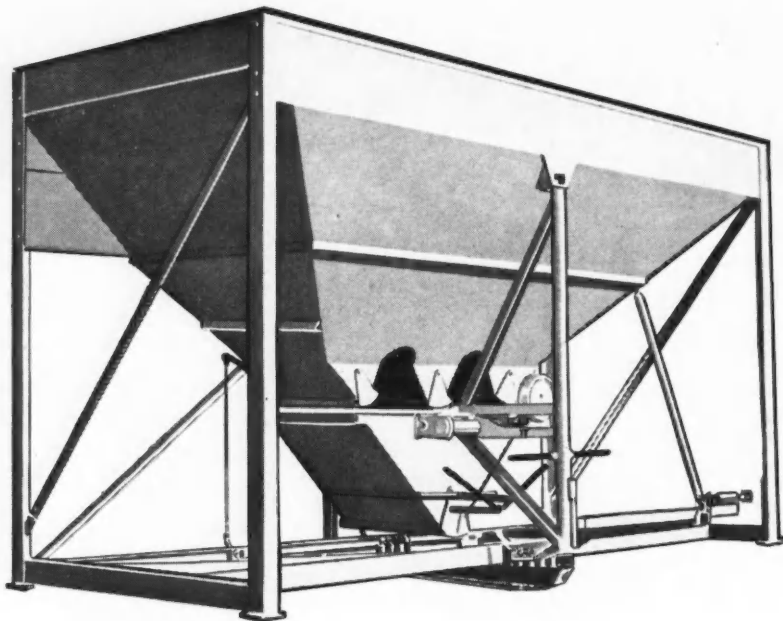
So do the remarkably low loading height and robust simplicity.

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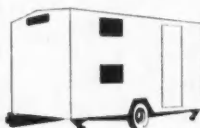
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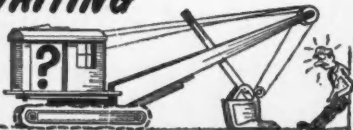


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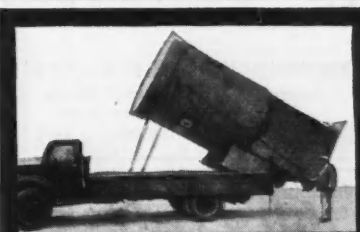
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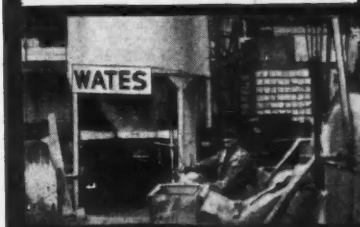
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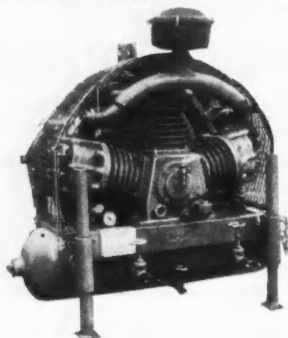
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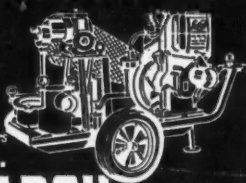
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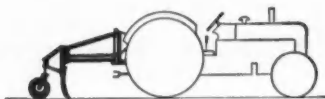
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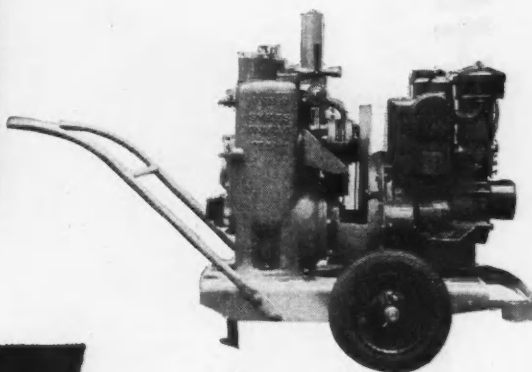
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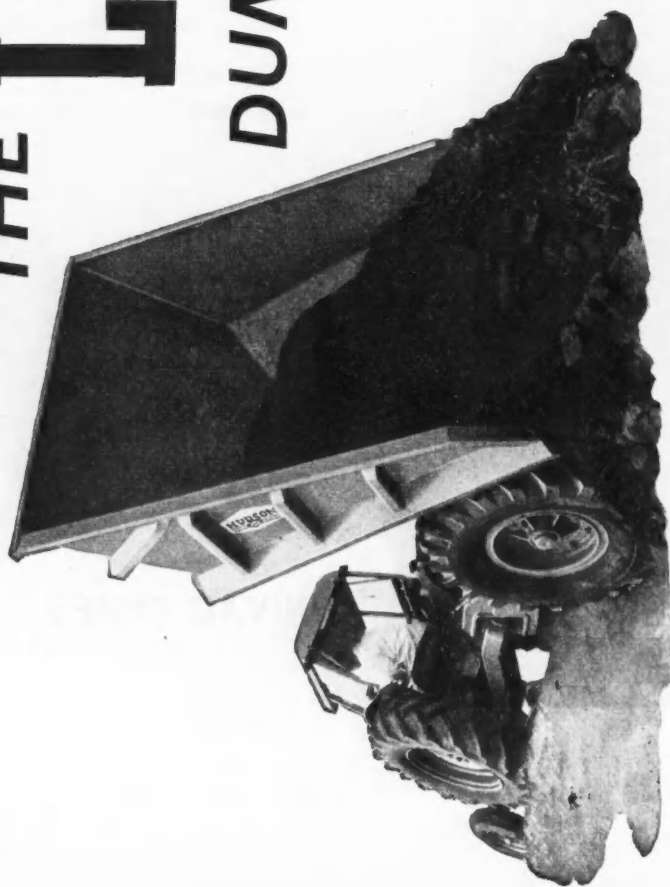
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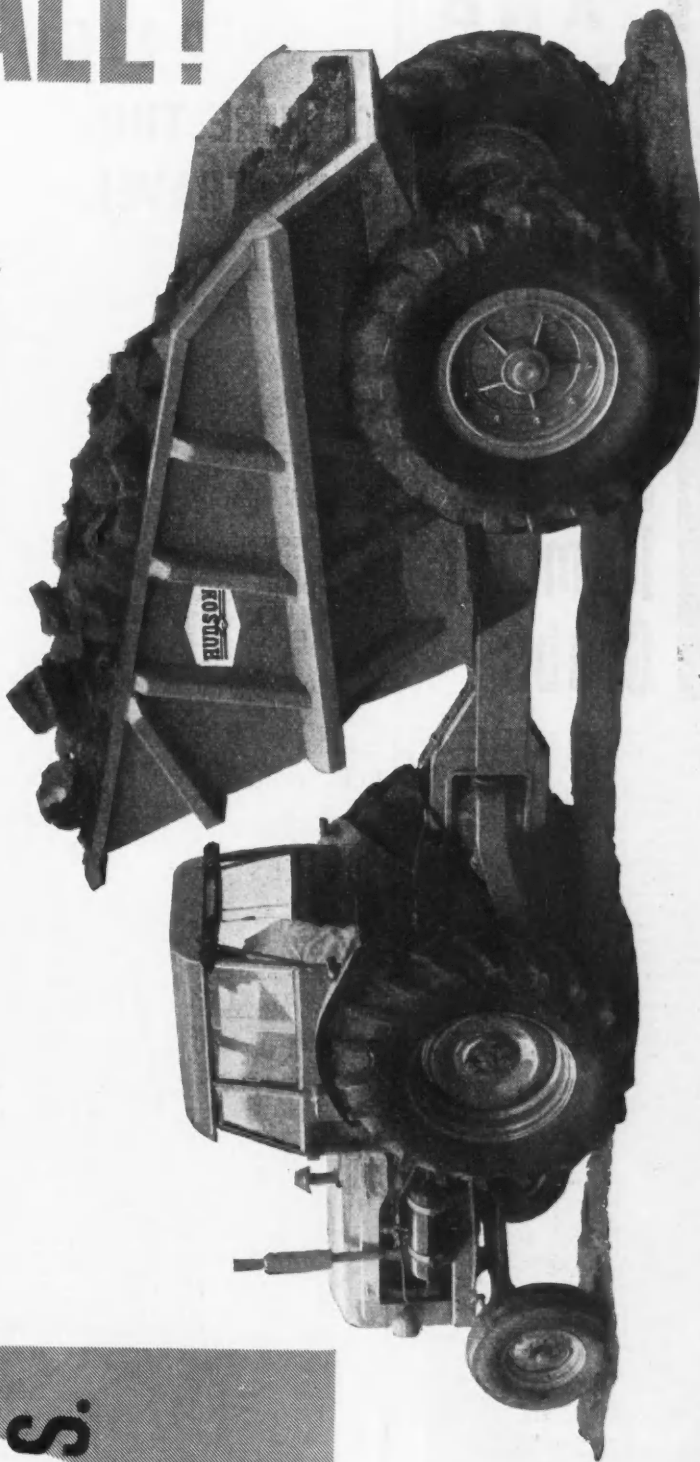


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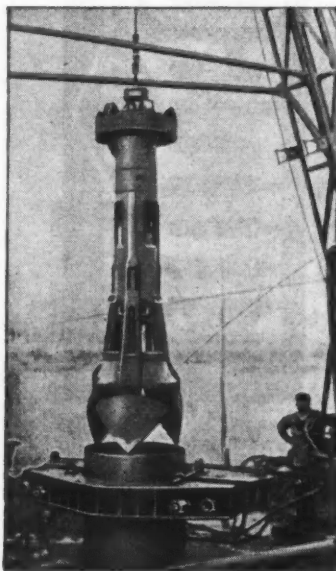
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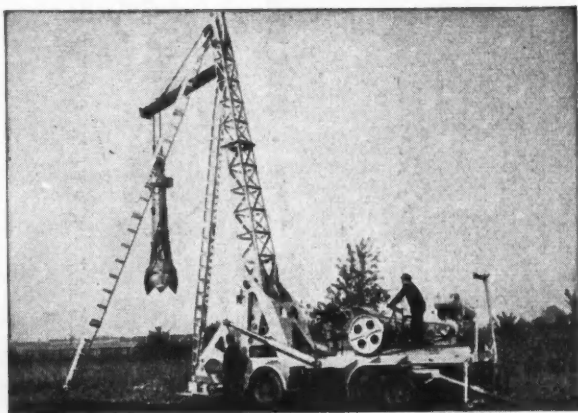
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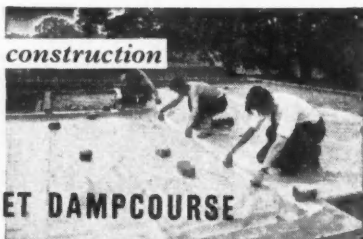
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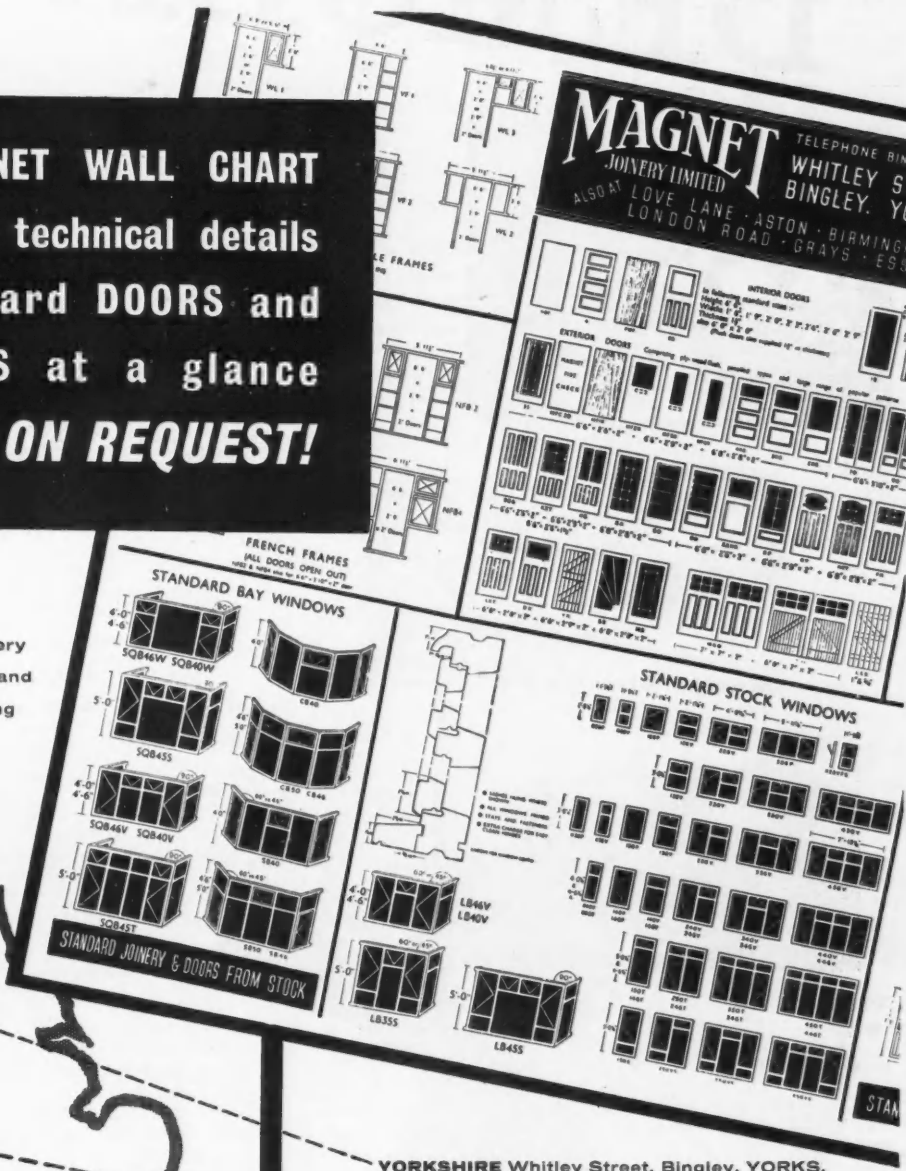
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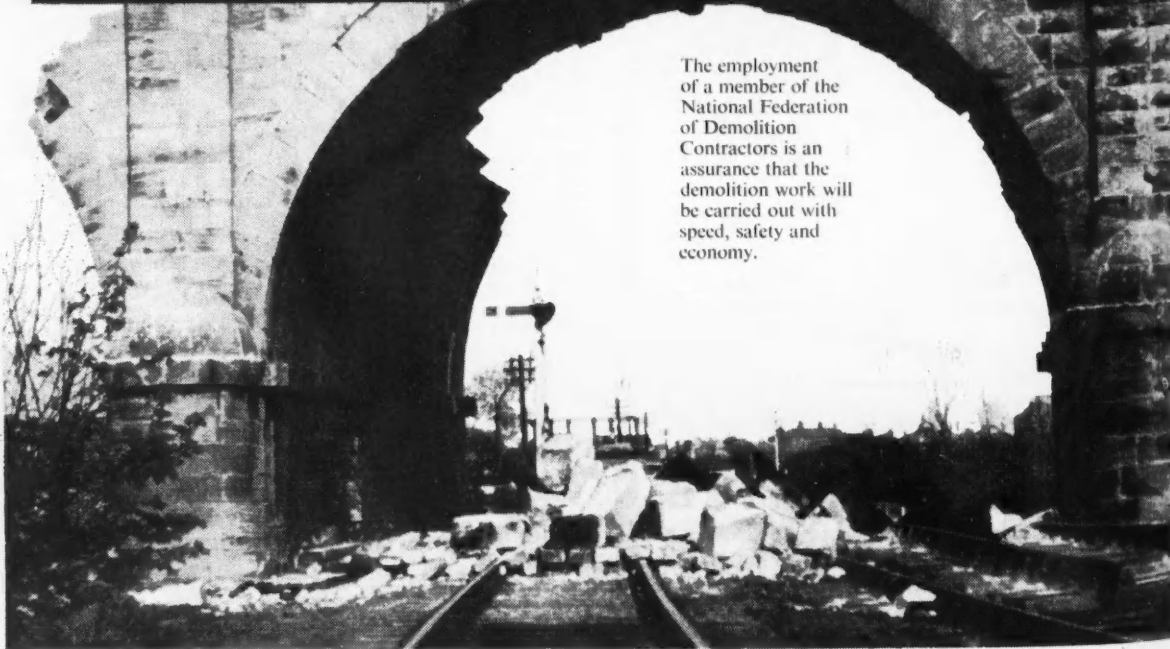
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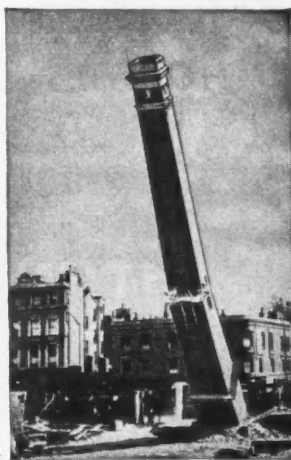
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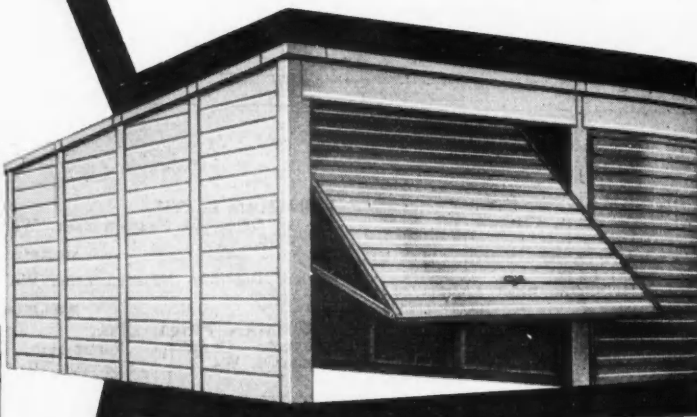


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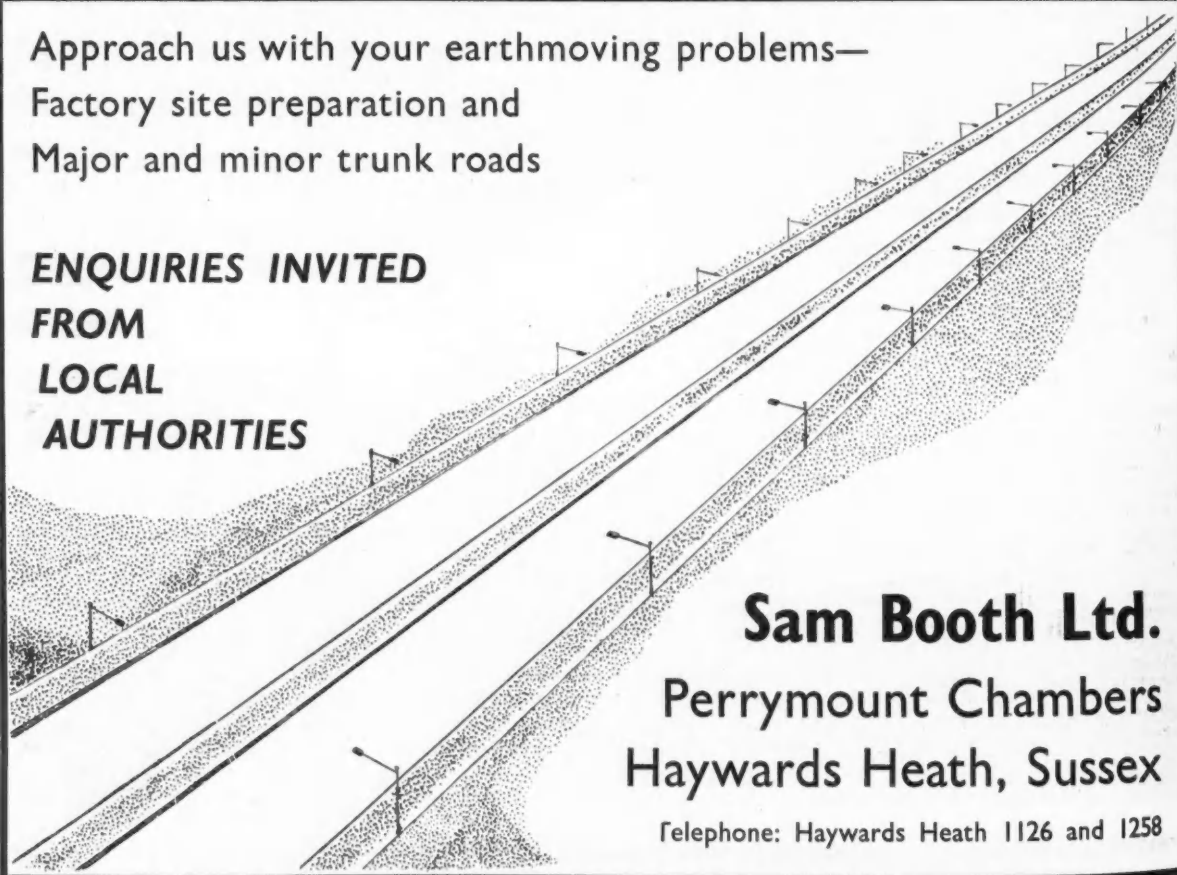
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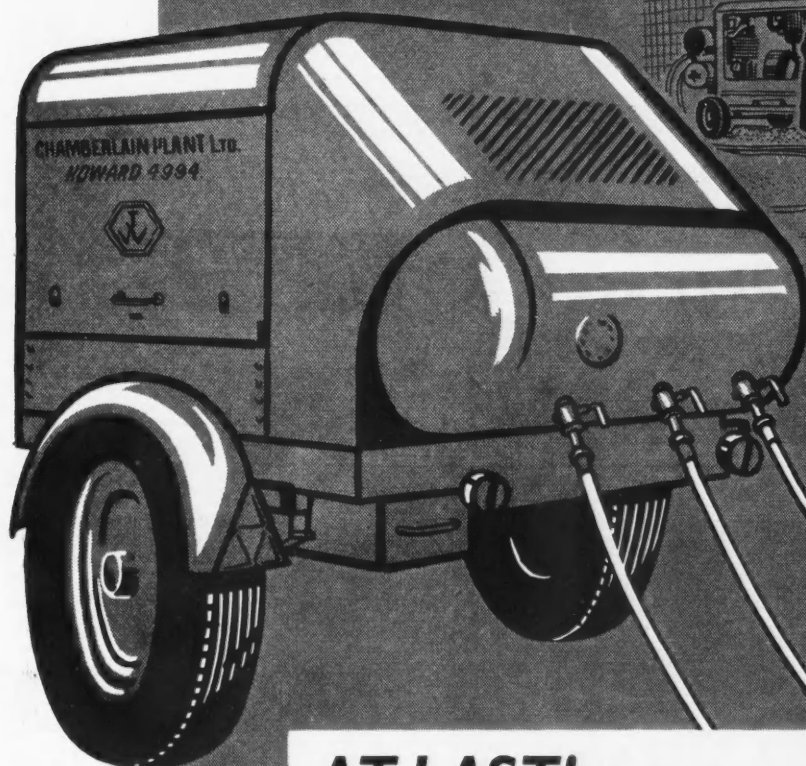


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capacity 156 c.f.m. at 100 p.s.i.

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(REGD. TRADE MARK)

**A better
LUG-TYPE
COUPLING**

**for SUCTION
and
DELIVERY HOSE**

In best quality brass, gun-metal or stainless steel. Lugs are buttressed for extra strength. Washers cannot fall out. Screwed B.S.P. threads (special threads to order). Specially selected leather washers. Machined and polished all over.

The "HERCULES" range includes all types of Hose Fittings: Repairers, Screw Couplings, Adaptors, Flexible Steel Band Hose Clips, etc., for pneumatic, oxy-acetylene and all industrial hose.



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THE SPECIALISTS IN HOSE FITTINGS



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Aqualite is the lightweight portable pump that is tough enough for work on any site. Unique feature is the rugged fully supported construction, which stands up to any amount of manhandling. Can be taken from site to site with ease. Advanced design ensures maximum efficiency.

The Aqualite pumps oil, paraffin, as well as water, handling 25% solids and passing $\frac{1}{2}$ " solids. It is equipped with a Briggs & Stratton engine coupled for direct drive. The centrifugal pump has a cast iron impeller, with hiduminium body united on a sturdy steel base.

	1½" model	2" model
Maximum suction lift	25ft.	25ft.
Maximum head	90ft.	100ft.
Maximum G.P.H.	4600	6400
Weight	48lbs.	52lbs.

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Dept. F, 1-3 Richmond Road, Ipswich, Suffolk
Please send me full details of Aqualite pumps

NAME.....

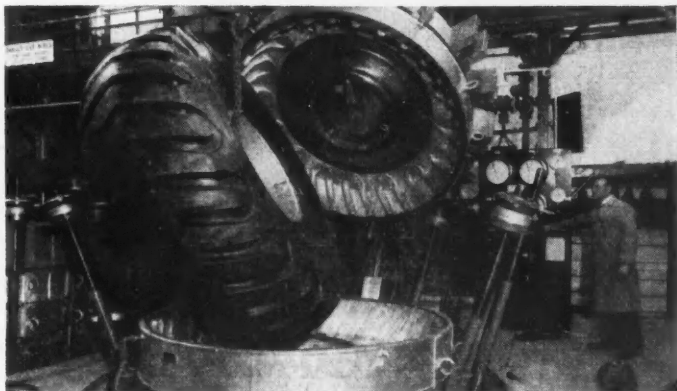
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A division of the 'Blue Peter' factory is devoted exclusively to retreading earthmover tyres of all makes.

You can rely on 'BLUE PETER' RETREADS because



1. 'BLUE PETER' are one of the most experienced tyre-retreaders in the country.
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3. 'BLUE PETER' laboratories are constantly testing and experimenting, providing strict control over all compounding and retreading processes.

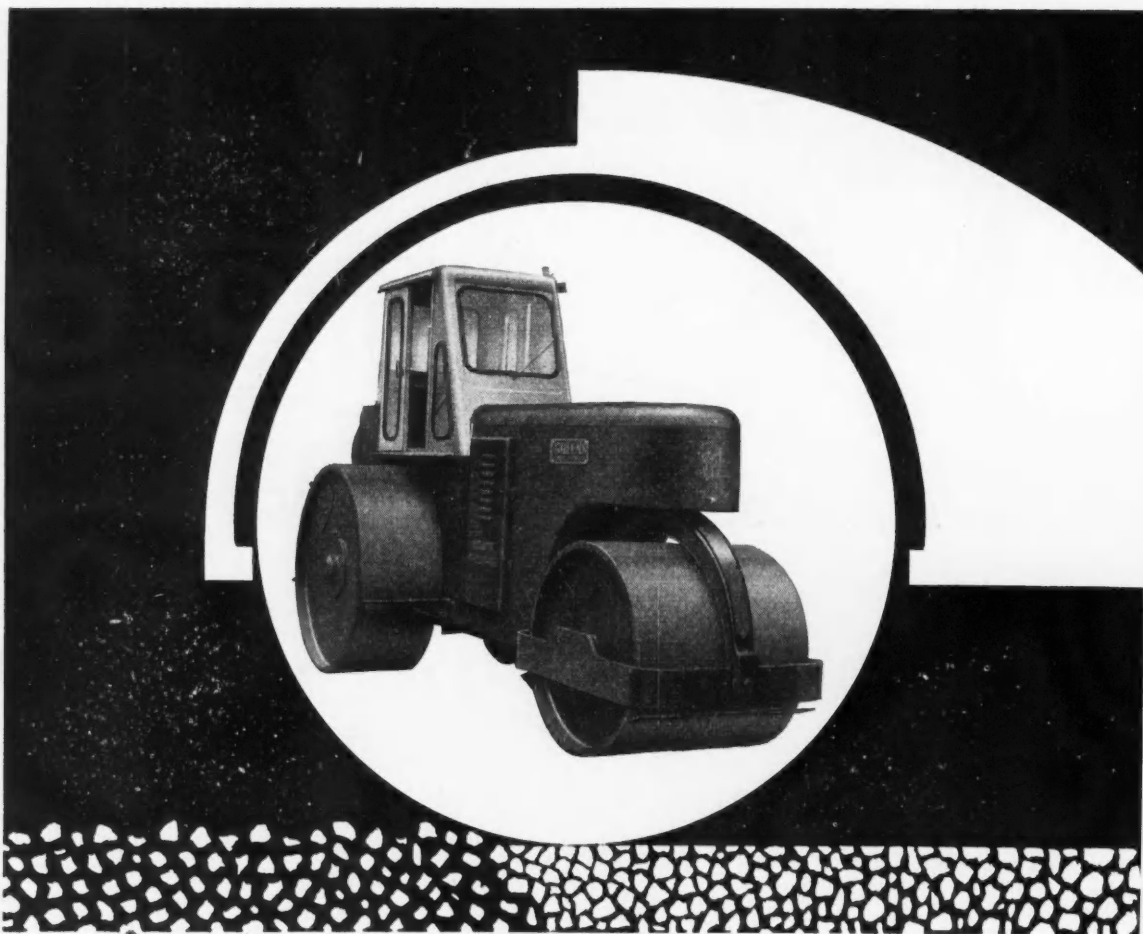
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'BLUE PETER' Service facilities are without rival. Local 'BLUE PETER' Distributors provide prompt and willing help, supported by the Company's specially designed transport vehicles, and Company Technical Representatives keep a watching brief on the performance of the product. Tyres for repair and/or retreading are collected and thoroughly examined at the 'BLUE PETER' factory under conditions which cannot be matched on site. If a particular tyre should prove unfit for process a report is issued and the tyre returned. No charge is made for these services.

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Britain's first road roller with torque converter

GREENS Eddimatic roller

Smooth. Flexible. Versatile . . .

Never before has there been a heavy road roller which offers so much. Electric starting, torque converter for controlled travel in forward and reverse directions. Infinitely variable speed-range up to 5 m.p.h. Steel plate rolls of ballast pattern for variable pressures for surface rolling and consolidation. Roller with unique fuel storage system to ensure clean fuel and to eliminate wastage. Enclosed cabin, water tank and sprinklers, standard equipment. Two-tine scarifier, extra.




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GREENS Griffin Rollers

OUR RANGE INCLUDES TRADITIONAL ROLLERS FROM 11 CWT. TO 13 TONS

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CONCRETE TRANSPORTING AND SPRAYING BY THE BRITISH BUILT 'LANCY'

the modern, fast, labour saving method of dam building—lining tunnels, canal banks and reservoirs—constructing arches, walls etc.

LANCY pneumatic units transport and spray small aggregate concrete, cement and mortar over large areas, either horizontally or vertically. Depths of concrete ranging from a thin covering up to many inches can be sprayed at fast speeds. For tunnel lining, where space is restricted or where the required lining is very thin: for strengthening the sides of mines and excavations, and for the reinforced concrete construction of dams and storage tanks the "Lancy" saves labour and money. The Lancy will also transport damp sand from a central storing point to an outlying mixing bay. Now made in this country, all components are to British dimensions. Spares ex-stock.



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THE SHERMAN TRENCHER OUTPACES THEM ALL!

What a magnificent time-and-money saver! The Sherman Trencher outpaces any other on the market, and yet needs only 14 h.p. for peak efficiency operation. And it can easily be coupled or uncoupled in minutes, freeing your tractor sooner and giving greater interchangeability of units.

**SOLE DISTRIBUTORS FOR THE
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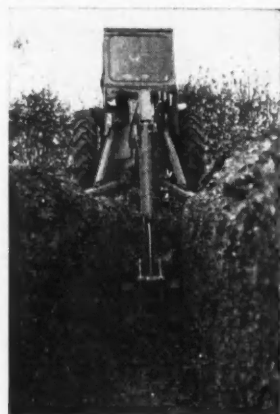
Call personally or telephone VIKING 3651 for full technical information or better still see the machine in action. We will arrange a demonstration on your own site.

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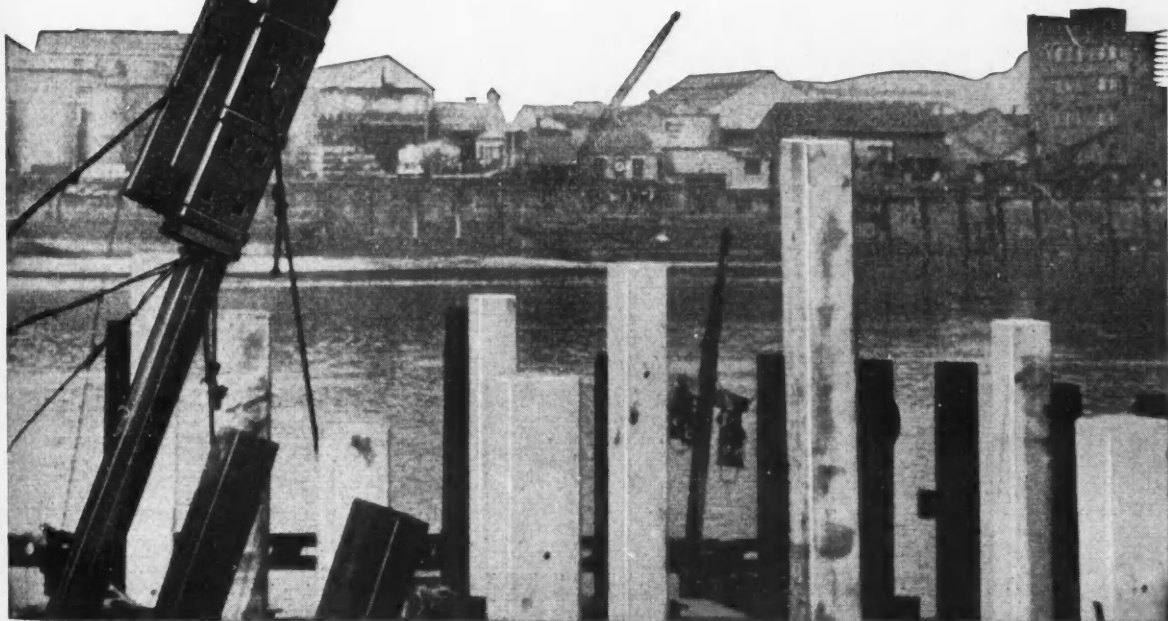
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DELMAG DIESEL PILE DRIVERS



For further information write to



Burlington Works, Abbey Road, Park Royal, London, N.W.10.
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HYDRAULIC HEAVY DUTY LOADER

**for Quickest Handling
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Supported by over 35 years' experience the Skyhi "ARDUA" Loader incorporates the most advanced system of hydraulic control. With twin-balanced rams on main lifting arms and twin-balanced double-acting rams on bucket, the "ARDUA" meets all present day requirements for faster and cheaper mechanical handling.

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*Illustration shows full width
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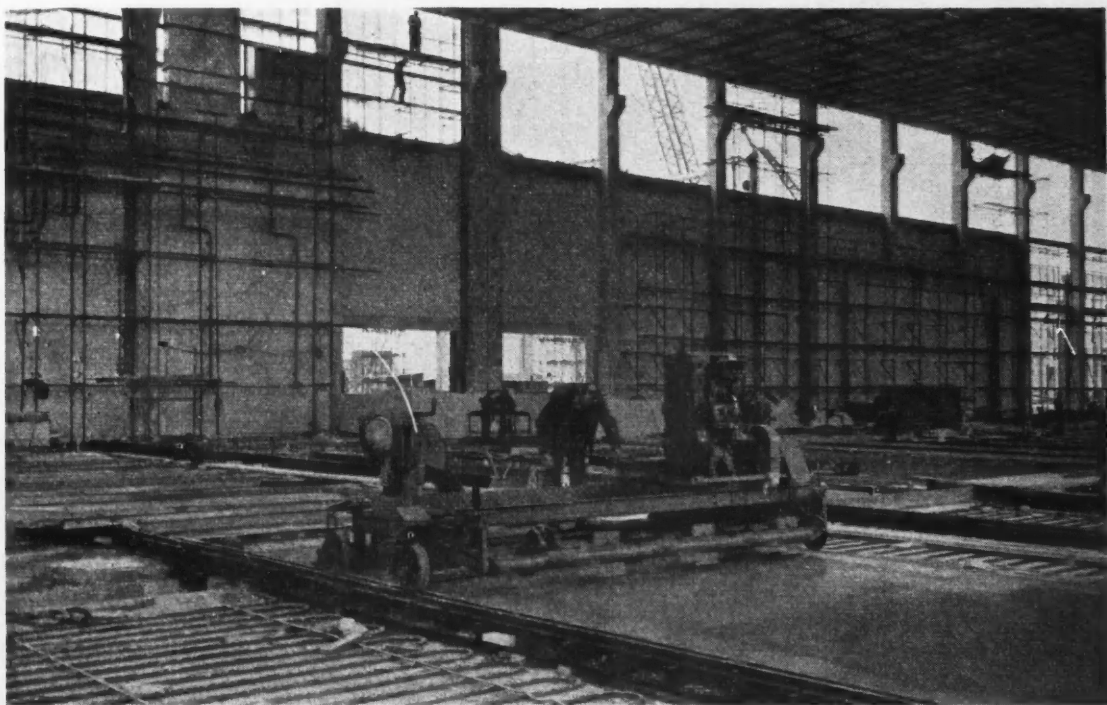
Head Office & Factory : **SKYHI LIMITED**
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HEATH TOWN, WOLVERHAMPTON
 Telephone: WOLVERHAMPTON 27431/2

London Office :
PULSOMETER HOUSE
20-26 LAMB'S CONDUIT STREET, W.C.1
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FACTORY FLOORS LAID CHEAPER, QUICKER, BETTER WITH S.G.M.E. CONCRETE FINISHERS



This photograph shows a Concrete Finisher laying the concrete floor of a Hangar. It was taken by courtesy of Messrs. Holland & Hannen and Cubitts (Great Britain) Ltd. at the B.E.A. Engineering Base, London Airport. The working width of this particular machine is 12-ft. but the machine can lay concrete slabs of any width between 4-ft. and 16-ft. and up to 10-ins. thick. It can also compact and finish the granolithic layer and, if necessary, can be fitted with a cutting blade to cut all the joints in the freshly placed and compacted concrete. The Finisher, which is equally suitable for concrete roads, is powered by a 7.5 h.p. Diesel Engine and can run on side forms, on rails or on the finished concrete. This inexpensive machine, together with tracks, is available for Hire or Purchase and the Sole Agents will be very pleased to give full details.

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**It's "ceád míle fáilte"
to Austin in
Dublin's fair city**



WHEN they raise their glasses in Ireland's select bars, like as not it'll be a Phoenix ale they're drinking. And the ale will have come by Austin.

Phoenix was a new drink in 1956. In 1958 it won first prize against all comers at the Brussels World Fair. Last year 15,000,000 pints were downed in Eire alone and exports to America rose by 200%.

Phoenix is brewed at Waterford by an Associate Company of Arthur Guinness, Son & Co. (Dublin) Ltd. Austins carry it in huge transportable tanks the hundred miles to the distributing centre, Cherry's Brewery, Dublin. Here it is bottled or casked and taken all over Ireland by Austins. There are all-day local deliveries too, to Dublin's 700-odd bars.

Concentrated effort

The 12 Austins in the Phoenix fleet include 3, 5 and 7 tonners. Of them Mr. D. B. Keogh, Manager, says, "75 per cent of the lorries', effort is concentrated into June, July and August. We need vehicles that will keep going, because we really do flog them then. In the summer they clock up averages of 1,000 miles a week. Our 7 tonner has covered 180,000 miles since May '55 and many of our Austins have done over 100,000 miles without any major repair at all."



Rush hour in O'Connell Street. Ned Buckley at the Austin's wheel. His job—daily deliveries in Dublin. How does the 3 tonner stand up to it? "Never even had a puncture," he says. "A poor man wouldn't get this lorry. He wouldn't be so lucky, see!"



Up from Waterford with 540 gallons in each 18 cwt. tank. John Fleming of Co. Wexford, 25 years a driver, says of his 5 ton Austin: "You couldn't ask for better than B.M.C. Austin. I go all over Ireland in mine, go up hills without a change. I've had no trouble at all, even with 8 or 9 ton loads and trailer. It's the best I've had yet in any make for comfort, turning, steering, everything. A big load feels like no load at all."



All vehicles in the 1-7 ton Austin range are warranted for 12 months and backed by B.M.C. Service. Lincoln & Nolan Ltd., Dublin, supply Austins for the Phoenix fleet.

AUSTIN



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Deliveries of Wireweld fabric are made direct to sites anywhere in the country *at short notice*. Wireweld is a high-tensile steel fabric, manufactured from hard drawn steel wire electrically welded at all intersections to B.S. 1221, Part A. It is made in a wide range of sizes in oblong and square mesh.

**If you want to put steel into concrete,
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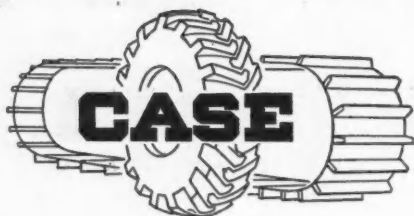
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CASE
CONSTRUCTION EQUIPMENT



COMPRISING Crawler Tractors
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All with Torque Converters and
unique "Terramatic Transmis-
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control to each track and instant
change of speed or direction.
80 and 100 H.P.

A full range of Case "Terraload'r"
Wheeled Shovels — Models W.5,
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*Further announcement will be made
regarding production commence-
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*CASE imported equipment is
currently available for immediate
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Please write for full particulars
and specification to:

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MILL ROAD, WEST DRAYTON, MIDDLESEX. Tel: West Drayton 3221

Advertiser's Announcement**KEEPING THEM GOING**

Part Three in the Story of a Modern Organisation geared to supply a vital and growing industry.

By a Special Correspondent.

A tractor is an asset only when it is at work. Caterpillar-built equipment is well known for its ability to stay on the job under arduous conditions longer than any, but such are the demands of the earth-moving industry that the efficiency of a Service organisation is today almost as important as the prime efficiency of the machines themselves.

Bowmaker (Plant) Limited are the Authorised Caterpillar Dealer for the Midlands, Wales and the South and West of England. They have, in recognition of the vital necessity of keeping the machines they sell on the job, built up a Service Department whose tasks are to reduce the incidence of breakdowns, minimise downtime when breakdowns do occur, and effect repairs competently and economically.



A busy scene in the workshops at the Willenhall Branch

The Men on the Job

The department is constantly growing and now employs over 150 trained service-men. Some of these have served more than twenty years and have acquired a vast fund of experience, exclusively of Caterpillar-built equipment, to give the department a background of knowledge that can never be truly valued. Some thirty of these men are employed entirely on field service work.

Keeping the Price Right

In spite of all this, the cost of the service to the consumer has to be held to an economical minimum. Bowmaker (Plant) Limited have found that this can be achieved precisely by paying top wages for the highest skills and high prices for expensive specialised equipment. In this way, the time spent on any job is reduced to a minimum with the result that prices are held down and machines are put rapidly back into service.



Part of the Service Vehicle Fleet operating from the Willenhall Branch

Working on Site

Earthmoving equipment is expensive and cumbersome to haul from place to place and it is therefore important that the workshop is taken to the breakdown, rather than the breakdown to the workshop whenever this is a practicable proposition.

Provided the work involved is compatible with site conditions, Bowmaker (Plant) Limited make every effort to carry out repairs in the field. For this purpose 45 vehicles are maintained in readiness, many of which are fitted with lifting gear, hydraulic presses and other heavy tools. The combined cost of a single vehicle with its equipment can be in the region of £2,000.

Working at the Depots

In spite of the special equipment available for field service the majority of the work of the Service Department is carried out on the premises at the five depots at Willenhall, Clay Cross, Cardiff, Fenny Bridges and Chippenham. Here major repairs, overhauls and rebuilds are carried out to bring worn equipment back into operational service with earning capacity fully restored. Bowmaker personnel are trained to keep the economics of every job fully in view at all times. It is not sufficient simply to diagnose faults and prescribe new components to replace worn or broken parts. Workshops are equipped with elaborate apparatus to cover such processes as automatic roller and link rebuilding and undercarriage reclamation and extensive use is made of oversizes, metal spray, casting repair and welding techniques to carry out the best possible job at the minimum expense to the owner.

Getting the Right Staff

The work of the Service Department is specialised, complex and exacting, and as a result of this, Bowmaker (Plant) Limited have found that they have been unable to rely on obtaining personnel with suitable skills developed elsewhere. Accordingly the recruitment of the right material has assumed major significance. By the creation of apprenticeship schemes, by encouragement of the right calibre of school leavers and by an intensive and continuous system of training, young people are introduced into the Department and systematically brought up to understand and adhere to the rigid standards essential to keeping Caterpillar-built machines at peak efficiency. The Company enjoys a remarkably low incidence of staff turnover and this in itself is a measure of the success of these methods. Employees have been quick to recognise that a job which needs thought and judgement, a job in which only the best possible tools and materials are used, provides them with great satisfaction. This is an attitude to work which benefits the customer immeasurably.



Parts Manager, Cardiff Branch, receives Caterpillar Certificate for Proficiency

New Premises Building

As part of the long-term plan to keep pace with the rapidly expanding industry they supply, and simultaneously to improve the standards of service they can offer, Bowmaker (Plant) Limited are now embarked on an extensive building programme. This will be completed by the early summer of 1961 and as a result three entirely new depots will replace the premises at present in operation at Willenhall, Cardiff and Fenny Bridges. The new sites are at Cannock, Cardiff and Exeter. Over half a million pounds capital expenditure and some 20 acres of land are involved in this big new building programme. When it is complete, the network of depots the Company operates will be the most up-to-date in the industry and will offer a standard of service unparalleled by competitors in this country.

Bowmaker (Plant) Limited, Authorised Caterpillar Dealer, operate from these addresses: Noose Lane, Willenhall, Staffs. (Tel.: Willenhall 696); Colchester Avenue, Colchester Trading Estate, Cardiff (Tel.: Cardiff 45661); Fenny Bridges, Honiton, Devon (Tel.: Feniton 206); Hulse Road, Salisbury, Wilts. (Tel.: Salisbury 4965); and Chesterfield Road, Clay Cross Derbyshire (Tel.: Clay Cross 2571).

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

CONTRACTS

BUCKS. COUNTY COUNCIL.

LONDON-BIRMINGHAM TRUNK ROAD, A.41.

IMPROVEMENT AT NORMILL TERRACE.

TENDERS are invited for ROADWORKS (approx. 1,000yd.), comprising Widening, Haunching and Channelling in Concrete, Kerbing, Tarmacadam Shaping, Drainage, the Extension of a Culvert, and ancillary works.

Drawings may be seen at the Offices of the County Surveyor's Department, Park Street, Aylesbury, and Contract documents may be obtained from the County Surveyor, County Offices, Aylesbury, on deposit of £2, returnable on receipt of a bona-fide Tender.

Tenders must reach the undersigned by 10 a.m. on MONDAY, 3rd October, 1960.

R. E. MILLARD,

Clerk of the Council.

County Hall,
Aylesbury,
September, 1960.

BUCKS. COUNTY COUNCIL.

LONDON-FISHGUARD TRUNK ROAD, A.40.

IMPROVEMENT AT RADNAGE TURN.

TENDERS are invited for ROADWORKS (total length approx. 800yd.), comprising the Construction of 500yd. of New 24ft. Carriageway, and the Widening, Haunching and Channelling in Concrete and Rolled Concrete of the remaining length, together with Kerbing, Drainage, Grading with Tarmacadam, and other ancillary works.

Drawings may be seen at the Offices of the County Surveyor's Department, Park Street, Aylesbury, and Contract documents may be obtained from the County Surveyor, County Offices, Aylesbury, on deposit of £2, returnable on receipt of a bona-fide Tender.

Tenders must reach the undersigned by 10 a.m. on MONDAY, 3rd October, 1960.

R. E. MILLARD,

Clerk of the Council.

County Hall,
Aylesbury,
August, 1960.

GLOUCESTERSHIRE COUNTY COUNCIL.

MORTON-OLDBURY NAITE ROAD.

TENDERS are invited for WORKS on the ABOVE-NAMED ROAD, which consist of the Widening and Reconstruction of 2½ miles of Existing Road and the Construction of 1¼ miles of New Road, including Drainage, Earthworks, Fencing, Footpaths 18/22ft. wide Carriageway, Two Reinforced Concrete Culverts on Piled Foundations, and ancillary works.

The completion date is 1st September, 1961.

The works are situated between Morton and Oldbury Naite, and are approx. one mile north of Thornbury, near Bristol.

Tender documents can be obtained from the County Surveyor, Quay Street, Gloucester, on payment of a deposit of £10, made payable to the Gloucestershire County Council, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, in plain sealed envelopes endorsed "Morton-Oldbury Naite Road," must be received by the County Surveyor, Quay Street, Gloucester, not later than 10 a.m. on WEDNESDAY, 5th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

GUY H. DAVIS,

Clerk of the County Council.

Shire Hall,
Gloucester,
August, 1960.

GLOUCESTERSHIRE COUNTY COUNCIL.

BIBSTONE DIVERSION—CROMHALL.

TENDERS are invited for WORKS on the ABOVE-MENTIONED SCHEME, which consists of the Construction of a 330 lin. yd. Diversion to the Existing Road, including Earthworks, Drainage, Fencing, 24ft. wide Carriageway, and ancillary works.

The completion date is 31st January, 1961.

The works are situated at Cromhall, four miles south-west of Wotton-under-Edge, on B.4058 Bristol-Malvern Road.

Tender documents can be obtained from the County Surveyor, Quay Street, Gloucester, on payment of a deposit of £5 made payable to the Gloucestershire County Council, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, in plain sealed envelopes endorsed "Bibstone Diversion," must be received by the County Surveyor, Quay Street, Gloucester, not later than 10 a.m. on WEDNESDAY, 5th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

GUY H. DAVIS,

Clerk of the County Council.

Shire Hall,
Gloucester,
September, 1960.

COUNTY BOROUGH OF BURY.

TENDERS are invited for the COMPLETION OF CHANNELLING, KERBING, FLAGGING AND SURFACING OF CARRIAGEWAY IN LEWINGTON AVENUE, BROOKFIELD ROAD and STRATFORD AVENUE.

Tender documents obtainable from Borough Engineer's Office, Town Hall, Bury, where Drawings may be inspected.

Tenders, in official envelope provided, must reach me by 24th SEPTEMBER, 1960.

EDWARD S. SMITH,

Town Clerk.

Town Hall,
Bury,
23rd August, 1960.

LITTLEPORT PARISH COUNCIL.

PROPOSED SWIMMING POOL—PARSON'S LANE, LITTLEPORT, CAMBS.

TENDERS are invited for the CONSTRUCTION OF a SWIMMING POOL, including Filtration and Chlorination Plant, Cubicles, Conveniences, etc.

Plans can be inspected, and Bills of Quantities, Specifications and Tender Forms can be obtained from the Architect, MR. A. E. KING, M.Inst.R.A., 1a Lynn Road, Ely, Cambs.

Tenders, on the prescribed Tender Form, endorsed "Tender for Swimming Pool," to be received by the undersigned on or before 8th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. SPARROW,

Clerk to the Council.

Town Hall,
Littleport,
Ely, Cambs.

CONTRACTS

BOROUGH OF DROITWICH.

STREET LIGHTING—TOWN CENTRE.

TENDERS are invited from experienced contractors for the SUPPLY, DELIVERY AND ERECTION OF 24 PLAIN STEEL LIGHTING COLUMNS 25ft. mounting height, and FIVE TUBULAR STEEL BRACKETS, all with 250-W Colour Corrected Mercury Discharge Lamps, together with Wiring, Lanterns and auxiliary gear, and the DISMANTLING OF 29 EXISTING LIGHTING POINTS.

Conditions of Contract and Plan may be inspected at, and Specification, Bills of Quantities and Form of Tender obtained from the Borough Engineer and Surveyor, Town Hall, Droitwich, during normal office hours upon payment of a deposit of £2 2s., which sum will be returned on receipt of a bona-fide Tender and the return of all documents.

Tenders, in plain sealed envelopes endorsed "Street Lighting—Town Centre," to be delivered to the undersigned not later than 10 a.m. on MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

S. G. FOSTER,

Town Clerk.

Town Hall,
Droitwich, Worcs.
31st August, 1960.

LETCWORTH URBAN DISTRICT COUNCIL.

DISTRICT ROADS PROGRAMME.

TENDERS are invited for VARIOUS WORKS under the District Roads Programme 1960-61. The Tender will take the form of a priced Schedule of Rates, and the approved contractors may be required to carry out any part of the programme.

Documents may be obtained from MR. E. L. JOHNSON, M.I.Mun.E., The Engineer and Surveyor, The Council House, Letcworth, upon payment of £3 3s. deposit, refundable on receipt of a bona-fide Tender, and Conditions of Contract and Drawings may be inspected in this office during normal working hours.

Tenders, in the envelopes provided, should be returned not later than First Post on FRIDAY, 30th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

H. PLINSTON,

Clerk of the Council.

The Council House,
Letchworth, Herts.

LETCWORTH URBAN DISTRICT COUNCIL.

SURFACE WATER SEWER.

TENDERS are invited for the CONSTRUCTION OF approx. 54 lin. yd. of 27in. dia. THICK WALL CONCRETE PIPES and 25 lin. yd. of 24in. dia. THICK WALL CONCRETE PIPES, together with all ancillary works.

Documents may be obtained from MR. E. L. JOHNSON, M.I.Mun.E., The Council House, Letcworth, upon payment of £2 2s. deposit, refundable on receipt of a bona-fide Tender, and Conditions of Contract and Drawings may be inspected in this Office during normal working hours.

Tenders, in the envelopes provided, should be returned not later than First Post on FRIDAY, 30th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

H. PLINSTON,

Clerk of the Council.

The Council House,
Letchworth, Herts.

BARNET URBAN DISTRICT COUNCIL.

RELIEF SURFACE WATER SEWER—EAST VIEW.

The Council invite TENDERS for the CONSTRUCTION OF approx. 150yd. of 21in. dia. PRECAST CONCRETE PIPE SURFACE WATER SEWER, together with PRECAST CONCRETE MANHOLE, BRICK MANHOLE and BRICK OUTFALL, and other works incidental thereto, sited partly in highway and partly in private property.

Conditions of Contract and Drawings may be inspected and Specification of Works, Bill of Quantities and Form of Tender obtained on application to the Engineer and Surveyor of the Council, Ravenscroft House, Wood Street, Barnet, on any day (Saturdays excepted) between the hours of 9 a.m. and 5 p.m.

Sealed Tenders must be delivered to the undersigned not later than 12 Noon on SATURDAY, the 17th September, 1960, and marked in the top left-hand corner of the envelope "Relief Surface Water Sewer—East View."

The Council does not bind itself to accept the lowest or any Tender.

ALFRED S. MAYES,

Clerk of the Council.

Municipal Offices,
Wood Street,
Barnet, Herts.

30th August, 1960

MATLOCK URBAN DISTRICT COUNCIL.

DARLEY DALE SEWERAGE—CONTRACT D.D.2.

TENDERS are invited on a Fixed-price Basis, for the LAYING OF SEWERS and the CONSTRUCTION OF PUMPING STATIONS in Darley Dale.

The work will include about 1¼ miles of 18in. Concrete Sewers; ½-mile of 15in. Concrete, ¾-mile of 12in. concrete (depths to 15ft.); 5 miles of 9in. Salt-glazed Ware; ½-mile of 6in. Salt-glazed Ware; Short Lengths of 24in. and 21in. Concrete Sewers, and about ¾-mile of 12in. Iron Sewers, and ½-mile each of 10in., 8in., 6in. and 4in. Iron Sewers and Pumping Mains, together with all Manholes (mostly Concrete Tube), Storm Overflows, One Crossing under the River Derwent, Three Crossings under the Railway and various Stream Crossings. It will also include Four Pumping Stations with Substructures in Reinforced Concrete, down to 26ft. in depth, and Superstructures in Brickwork with Stone Facings.

Tendering documents (including Drawings) will be available towards the end of September, and may be obtained from the Council's Consulting Engineers, MESSRS. W. RADFORD AND SON, 57 Goldsmith Street, Nottingham. Every application must be accompanied by a deposit cheque for Six Guineas, payable to the Matlock Urban District Council. The deposit will be repaid after receipt of a bona-fide Tender.

Tenders are to be delivered to my Office by 14th NOVEMBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. OWEN HUNT,

Solicitor and Clerk of the Council.

Town Hall,
Matlock,
Derbyshire,
September, 1960.

CONTRACTS

COUNTY BOROUGH OF NEWPORT.

BETTS NEIGHBOURHOOD UNIT.

ADVANCE PREPARATION WORKS—CONTRACT 2. APPROX. AREA 39 ACRES.

TENDERS are invited for the EXECUTION OF THE ABOVE WORKS, including Site Clearance, Construction of Stone Pitched Carriageway, Soil and Surface Water Sewers, and ancillary works.

General Conditions, Specification and Bill of Quantities may be obtained from the Office of the Borough Engineer, City Centre, Newport, Mon. on the production of the Borough Treasurer's receipt for £2 2s., which will be returned on receipt of a bona-fide Tender.

The Drawings may be inspected at either the Office of the Borough Engineer or at the Office of the Consulting Engineers, Messrs. W. S. Atkins and Partners, 6 Park Place, Cardiff.

Tenders must be enclosed in the envelope provided, and endorsed "Betts—Contract 2," and not bearing any name or mark indicating the sender, should reach the TOWN CLERK not later than 1 p.m. on WEDNESDAY, 28th September, 1960.

BOROUGH OF CHELMSFORD.

MEADGATE ESTATE—PHASE III.

CONSTRUCTION OF ROADS AND SEWERS.

FIXED-PRICE TENDERS are invited from experienced contractors for the CONSTRUCTION OF ROAD, SEWER and ancillary works in connection with the ABOVE DEVELOPMENT SCHEME. The works involve the construction of approx. 7,600 sq. yd. of Reinforced Concrete Carriageway, 2,500 lin. yd. of Foul and Surface Water Sewers 15in.-6in. dia., Manholes, Car Parks, and other incidental works.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans inspected at, the Office of the Borough Engineer and Surveyor, Municipal Offices, Chelmsford, upon payment of Two Guineas, which will be returned upon receipt of a bona-fide Tender which is not subsequently withdrawn.

Plans, in plain sealed envelopes endorsed "Meadgate—Roads and Sewers," must be delivered to the undersigned not later than 12 Noon on MONDAY, 3rd October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

B. A. FRANCIS,

Town Clerk.

Municipal Offices,
Chelmsford.

BOROUGH OF CHESTERFIELD.

LOUNDSLEY GREEN HOUSING ESTATE.

Applications are invited from civil engineering contractors to submit their names for consideration for inclusion in a list of contractors who will ultimately be invited to TENDER for a LARGE-SCALE ROAD and SEWER CONTRACT on the ABOVE HOUSING ESTATE.

The area to be developed comprises approx. 125 acres, and includes approx. Five Miles of Roads and Dual Sewer Work together with Structural Work in Reinforced Concrete.

The successful contractor will be required to commence work not later than March 1961, and be capable of completing the Contract by the end of December, 1961.

A layout of the estate can be inspected by appointment between the hours of 9 a.m. and 5 p.m. Monday to Friday, at the Office of the Borough Engineer and Surveyor, Town Hall, Chesterfield, from whom further information can be obtained, and to whom the applications in writing shall be submitted not later than FRIDAY, 30th September, 1960.

RICHARD CLEGG,

Town Clerk.

1st September, 1960.

CITY OF CARLISLE.

BLACKWELL ROAD AND ST. NICHOLAS BRIDGE RECONSTRUCTION.

TENDERS are invited for the ABOVE. The work comprises Reconstruction of existing Granite Set-paved Carriageway in Lean-mix Concrete and Asphalt Surfacing, together with Flagged Footpaths.

Particulars from City Surveyor, 18 Fisher Street. Closing date, 22nd SEPTEMBER, 1960.

H. D. A. ROBERTSON,

Town Clerk.

BORDER RURAL DISTRICT COUNCIL.

HOUGHTON SEWAGE DISPOSAL WORKS EXTENSION.

The Council invite TENDERS for the CARRYING OUT OF EXTENSIONS TO THE EXISTING SEWAGE WORKS, comprising Inlet and Settling Tanks, Filters, Humus Tanks, Sludge Beds, along with ancillary works including Pipework and Drains, etc.

Contractors with the necessary experience, plant and labour force desirous of tendering should submit their names and addresses, together with deposit of £2 2s., to the Council's Engineer at the under-mentioned address, following which necessary Specification and Bill of Quantities will be forwarded.

E. E. HARDING,

Clerk of the Council.

7 Victoria Place,
Carlisle.

9th September, 1960.

MARKET BOSWORTH RURAL DISTRICT COUNCIL.

PARISH OF NEWBOLD VERDON—NEWBOLD HEATH SEWERAGE.

The above Council are prepared to receive TENDERS from suitably experienced contractors for the LAYING OF approx. 750yd. of 4in. dia. CAST-IRON PUMPING MAIN, and the CONVERSION OF an EXISTING SEWAGE TREATMENT TANK to a PUMPING STATION, for the Drainage of Newbold Heath, in the Parish of Newbold Verdon, Leicester-shire.

Drawings may be seen at the Offices of the Engineers, MESSRS. PICK, EVERARD, KEAY AND GIMSON, 6 Millstone Lane, Leicester, from whom the Specification and Bill of Quantities may be obtained on payment of a deposit of Two Guineas, which will be refunded on receipt of a bona-fide Tender and the return of documents.

Tenders, on the form supplied and in the envelope provided, are to be delivered to the undersigned not later than 10 o'clock in the Forenoon of SATURDAY, 8th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

C. J. HOLMES,

Clerk of the Council.

Council Offices,
Market Bosworth,
Nuneaton,
Warwickshire.

CONTRACTS

COUNTY BOROUGH OF DONCASTER.

PRIVATE STREET WORKS.

HIGHWAYS CONTRACT NO. 55.

TENDERS are invited for the MAKING-UP of PART of a PRIVATE STREET known as St. Willfrid's Road (between Nos. 67-87 inclusive).

The proposed work comprises the Construction of approx. 110 lin. yd. of 6in. and 9in. S.W. Sewer, 220 lin. yd. of Kerb, 875 sq. yd. of Coated Macadam Surfacing, including Broken Stone Foundation, 400 sq. yd. of Flagging to Footpaths, together with Brick Manhole, Gullies, and ancillary works.

Form of Tender, Specification and Bill of Quantities may be obtained on payment of a deposit of £3 3s., returnable on receipt of a bona-fide Tender, from the Borough Surveyor, 2 Priory Place, Doncaster, at whose Office Plans and Conditions of Contract may be inspected.

Tenders are to be received at the Office of the undersigned not later than 10 a.m. on SATURDAY, 15th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

H. R. WORMALD,
Town Clerk.

1 Priory Place,
Doncaster.

METROPOLITAN BOROUGH OF WANDSWORTH.

HOUSING AT CLAPHAM.

Contractors wishing to TENDER for ERECTION of 10 TWO-STORY HOUSES, A SHOP and FLAT OVER, at PRESCOTT PLACE should submit names to me by 16th SEPTEMBER, 1960, giving details of experience, plant and technical and supervisory staff available, together with names of two technical and two financial referees. Bill of Quantities will be issued to selected contractors in due course.

Drawings may be examined at Borough Engineer and Architect's Department at this address.

J. NOEL MARTIN,
Town Clerk.

Municipal Buildings,
Wandsworth, S.W.18.

BOROUGH OF SUTTON AND CHEAM.

PROPOSED LIBRARY, CHEAM.

The COUNCIL invites TENDERS, on a Firm-price Basis, for the CONSTRUCTION of a NEW BRANCH LIBRARY, the approx. floor area of which is 5,700 sq. ft.

Bill of Quantities and Form of Tender may be obtained on application to MR. C. NEEDHAM, M.I.C.E., M.I.Mun.E., A.M.I.Struct.E., Borough Engineer and Surveyor, Municipal Offices, High Street, Sutton, Surrey, on payment of a deposit of £2 2s., which will be returned on receipt of a bona-fide Tender, together with all documents, etc., supplied. Cheques should be crossed and made payable to the Sutton and Cheam Borough Council.

All applications for Bill of Quantities and Form of Tender must be received not later than 28th September, 1960. No application will be accepted after that date. The documents for tendering will be sent out on or about 5th October, 1960.

Drawings and Conditions of Contract may be inspected at the Office of the Borough Engineer and Surveyor by all persons who have made the necessary application to tender.

Tenders, on the prescribed form, in the envelope provided, bearing no indication of the name of the sender, and endorsed "Tender for Cheam Library," must be delivered at the Office of the undersigned not later than 12 Noon on WEDNESDAY, the 2nd November, 1960.

The Corporation does not bind itself to accept the lowest or any Tender.

A. PRIESTLEY,
Town Clerk.

Municipal Offices,
Sutton, Surrey,
August, 1960.

CITY AND COUNTY OF BRISTOL.

BRIDGE OVER ENTRANCE TO DOCK—FEEDER ROAD, BRISTOL.

REPAIRS TO PILE SUPPORTS.

TENDERS invited for REPAIR of PILE SUPPORTS of this ROAD BRIDGE.

Work includes: Provision of all Required Plant, Equipment and Materials to drive Two 14in. Precast concrete Piles, together with Headbeams, to underpin part of existing concrete bridge deck.

Copies of Conditions of Contract and Specification from City Engineer and Planning Officer, Cabot House, Deane Road, Bristol, 1, at whose Office the Drawings may be seen.

Tenders, enclosed in envelope provided, endorsed "Bridge Over Entrance to Dock—Feeder Road," but bearing no mark indicating sender, to CITY ENGINEER by 10 a.m., 5th OCTOBER.

RUGBY RURAL DISTRICT COUNCIL.

BINLEY COMMON SEWERAGE.

BINLEY WOODS ESTATE.

CONTRACT NO. 15.

TENDERS are invited for the LAYING of approx. 1½ miles of 9in. and 6in. SALT GLAZED WARE SEWERS with Concrete Tube Manholes, 275yd. of 4in. ASBESTOS-CEMENT RISING MAIN, and the CONSTRUCTION of a PUMPING STATION.

The work consists of an Extension of the Council's existing Sewerage System serving Binley Woods Estate, which is located within the Parish of Binley, some three miles east of Coventry.

The General Conditions of Contract, Specification and Bill of Quantities may be obtained from the Council's Consulting Engineers, MESSRS. J. D. AND D. M. WATSON, M.M.I.C.E., 67 Tuton Street, Westminster, London, S.W.1, on and after 19th September, 1960, on payment of a deposit cheque of Ten Guineas, refundable only to contractors who submit bona-fide Tenders and return all documents and Drawings. Deposit should be made payable to Rugby Rural District Council.

Sealed Tenders must be endorsed "Tender for Contract No. 15," bearing no name or mark indicating the sender, and delivered to the Office of the undersigned not later than Noon on MONDAY, 24th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

H. A. WILDE,
Clerk of the Council.

Council Offices,
24 Warwick Street,
Rugby,
Warwickshire,
29th August, 1960.

CONTRACTS

COUNTY BOROUGH OF GREAT YARMOUTH.

RECONSTRUCTION OF CENTRAL LIBRARY.

FIXED-PRICE TENDERS are invited for the SUPPLY and FIXING of the FOLLOWING:

- Hardwood Joinery, comprising Book Shelving, Counters and sundry Fittings for the above.
- Supply of Furniture, comprising Chairs, Tables, Desks and Venetian Blinds for the above.

Drawings, Conditions and Form of Tender may be obtained from the Borough Engineer on or after the 15th September, 1960, upon payment of £1 1s. deposit for each contract, deposit returnable upon receipt of bona-fide Tenders, not subsequently withdrawn.

Tenders, in the envelopes provided, must reach me by 9 a.m., TUESDAY, 4th October, 1960.

The Council does not bind itself to accept any Tender.

FARRA CONWAY,
Town Clerk.

Town Hall,
Great Yarmouth,
8th September, 1960.

METROPOLITAN BOROUGH OF CAMBERWELL.

STREET LIGHTING.

TENDERS invited for SUBSTITUTION of SODIUM for MERCURY LIGHTING comprising Group A: 200-Watt sodium installations on steel columns: A.2216, 140 Units—112 new, 28 retained; A.2208, 12 Units—nine new, three retained; and REPLACEMENT of 140-Watt SODIUM with 200-Watt SODIUM on existing steel columns: A.2, 70 Units; A.202, 108 Units; A.215, 98 Units.

Particulars and Form of Tender from BOROUGH ENGINEER AND SURVEYOR, Town Hall, S.E.5. Closing date, 10th OCTOBER, 1960.

BOROUGH OF DARTFORD.

FIXED-PRICE CONTRACT.

TEMPLE HILL NEIGHBOURHOOD UNIT.

ERECTION OF 29 FLATS, FOUR HOUSES, SIX SHOPS AND 20 GARAGES—SITES 3G AND 6I.

TENDERS are invited for the ERECTION of the FOLLOWING:

- SITE 3G:
- One Block containing 10 One-bedroom Flats, One Three-bedroom Flat and Four Shops.
 - One Block containing Two One-bedroom Flats and Four Two-bedroom Flats.
 - One Block of 11 Garages.

- SITE 6I:
- One Block containing 10 One-bedroom Flats, Two Three-bedroom Flats and Two Shops.
 - One Block of Four Two-bedroom Houses.
 - One Block of Nine Garages.

Further particulars, together with Form of Tender and Bills of Quantities, may be obtained on application to the undersigned, upon payment of a deposit of £2 2s., which will be refunded on receipt of bona-fide Tender, and the return of all documents supplied. Plans may be inspected at the Office of the Borough Surveyor, The Bridge House, Dartford.

Tenders, in plain sealed envelopes, endorsed "Tender for Dwellings, Shops and Garages—Contract 3G (6I)," but bearing no name or mark indicating the sender, must be delivered to me not later than 12 Noon on MONDAY, 14th November, 1960. Priced Bills of Quantities should be separately submitted in a sealed envelope, the sender's name clearly shown. These will be returned unopened, if not required.

THOMAS ARMSTRONG,
Town Clerk.

Council Offices,
Dartford.

KERICHO (KENYA) URBAN DISTRICT COUNCIL.

SEWAGE WORKS.

TENDERS are invited, closing Nairobi, 17th OCTOBER, for DELIVERY SITE of PLANT/MATERIALS for new SEWAGE SCHEME. Details available from CROWN AGENTS, 4 Millbank, S.W.1, quoting EC291 27.

THORNEY PARISH COUNCIL.

GROUP "A" LIGHTING IMPROVEMENT—MAIN ROAD THROUGH VILLAGE.

TENDERS are invited for Group "A" STREET LIGHTING WORKS as follows:

The Erection of 19 new Street Lighting Columns, together with 50K Lamp and Control Equipment, for 140-Watt Sodium Vapour Lighting.

Tender documents may be obtained from the undersigned on payment of a deposit of £2, which will be returned on receipt of a bona-fide Tender. Tenders, in the envelope provided, must reach the undersigned not later than 4 p.m. on the 10th OCTOBER, 1960.

ERIC SEARLE,
Clerk.

The Green,
Thorney,
Near Peterborough,
5th September, 1960.

EDINBURGH CORPORATION.

FORTH ROAD BRIDGE.

CONTRACT NO. 5.

ROAD WORKS NORTH OF FIRTH OF FORTH.

TENDERS are invited from experienced contractors for the EXECUTION of WORK comprising:

- Approx. 3½ miles of Dual Carriageway Approach Roads and 4 miles of Connecting Roads.
- 10 Reinforced Concrete Bridges.
- 600ft. long Reinforced Concrete Viaduct.
- 1,000ft. long Twin Tunnels.

Copies of the contract documents and Drawings may be obtained from the Consulting Engineers, Messrs. MOTT, HAY AND ANDERSON, 14 Melville Street, Edinburgh, 3, on payment of a deposit of £30 by cheque, made payable to the Forth Road Bridge Joint Board. The deposit will be repayable when a bona-fide Tender has been received and all Drawings returned.

Tenders must be sent in sealed plain cover, marked "Tender for the Forth Road Bridge Contract," and addressed to the Clerk, Forth Road Bridge Joint Board, City Chambers, Edinburgh, 1, so as to be received there not later than 15th NOVEMBER, 1960. The Joint Board do not bind themselves to accept the lowest or any Tender.

W. BORLAND,
Clerk to the Forth
Road Bridge Joint Board.

CONTRACTS

CARMARTHENSHIRE COUNTY COUNCIL.

CARMARTHEN-LLANELLY ROAD, A.484.

ROAD WIDENING AT MOREB.

SECTION C—FROM BURRY PORT GARDEN SUBURBS TO MOREB FARM.

TENDERS are invited for the REALIGNMENT, WIDENING and PART RECONSTRUCTION of the EXISTING ROAD for a distance of approx. 860 lin. yd. The Roadworks include Earthworks, Surface Water Drainage, Kerbing, Footways, Walls, Fencing, and ancillary works.

Contract documents can be obtained, and Plans inspected, at the Offices of the County Engineer and Surveyor, County Hall, Carmarthen, on payment of a deposit of £2, which is returnable on receipt of a bona-fide Tender which is not subsequently withdrawn.

Tenders (with all documents), in a plain sealed envelope not bearing any name or mark indicating the sender, and endorsed "Moreb Widening," must be returned to the undersigned not later than 28th SEPTEMBER, 1960.

The County Council does not bind itself to accept the lowest or any Tender.

W. S. THOMAS,
Clerk of the County Council.

County Hall,
Carmarthen,
September, 1960.

COUNTY BOROUGH OF BRIGHTON.

HIGHWAYS ACT, 1959. CODE OF 1892.

- TUMULUS ROAD (PART), SALTDEAN.
- HIGHVIEW AVENUE SOUTH, PATCHAM.

TENDERS are invited for COMPLETING the STREET WORKS at: (a) Tumulus Road, Saltdean—length 473 lin. yd.; (b) Highview Avenue South, Patcham—length 166 lin. yd.

The works consist of Macadam Carriageway, Kerb, Flag Paved Footways, Surface Drainage, and incidental works.

The Bills of Quantities and Contract documents can be obtained, and the General Conditions of Contract and Drawings inspected at the Office of D. J. HOWE, M.I.C.E., M.I.Mun.E., Borough Engineer, 26-30 King's Road, Brighton.

Tenders, with priced Bill of Quantities and other documents, must be returned in the envelope provided, bearing no indication of the sender's identity, not later than Noon on TUESDAY, 4th October, 1960.

The Council is not bound to accept the lowest or any Tender.

W. O. DODD,
Town Clerk.

Town Hall,
Brighton,
September, 1960.

BOROUGH OF YEOVIL.

ERECTION OF 42 HOUSES, 12 OLD PEOPLE'S BUNGALOWS, AND SIX GARAGES.

Applications are invited from experienced builders who wish to submit a TENDER for the ABOVE-MENTIONED PROPOSAL.

Applications must be submitted not later than Noon on TUESDAY, 27th September, 1960, giving details of Local Authorities for whom similar work has been carried out.

Applicants invited to tender will receive copies of Bills of Quantities and Layout Drawings, and be notified of the last date for receipt of Tenders.

A. HEAL, M.I.Mun.E.,
Borough Surveyor.

Municipal Offices,
Yeovil.

FROME RURAL DISTRICT COUNCIL.

ERECTION OF HOUSES AND ANCILLARY WORKS AT STATION ROAD, WANSTROW.

The above-named Council invite TENDERS for the FOLLOWING:

The Erection of One Pair of Traditional Three-bedroom Houses, together with ancillary services, Paths, Fencing, etc., and including a 60ft. Lay-by, at Station Road, Wanstrow, near Frome.

Applications for Tender documents should be made to the Council's Architects, MESSRS. HUMPHREY GOLDSMITH AND PARTNERS, of 18 Gay Street, Bath, not later than FRIDAY, the 23rd September, 1960.

The Council do not bind themselves to accept the lowest or any Tender, and reserve the right to issue Tender documents to those contractors whom they select from the list of applications for such documents. Tender documents will be issued to the approved contractors on receipt of a deposit of £2 2s. This deposit will be returned on the receipt of bona-fide Tenders and Tender documents.

The accepted Tender will be subject to the approval of the Ministry of Housing and Local Government.

J. C. HUGHES,
Clerk of the Council.

Public Offices,
Frome, Som.,
6th September, 1960.

HAMBLEDON RURAL DISTRICT COUNCIL.

SITE WORKS FOR BLOCK OF SIX GARAGES—ALFOLD.

TENDERS are invited for the CONSTRUCTION of a CONCRETE BASE and FORECOURT, together with REPAIRS to APPROACH ROAD, for a BLOCK of SIX GARAGES at BROCKHURST HOUSING ESTATE, ALFOLD.

A Specification, Plan and Form of Tender may be obtained from the Office of the Engineer and Surveyor on payment of a deposit of £2 2s., returnable upon receipt of a bona-fide Tender and the return of all documents. Cheques should be made payable to the Hambledon Rural District Council, crossed Lloyds Bank, Ltd., and sent to the Treasurer, Council Offices, Bury Fields, Guildford.

Tenders, in the endorsed envelopes provided, are to be delivered to the undersigned not later than 12 Noon on MONDAY, the 10th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender, and acceptance will be subject to the approval of the Ministry of Housing and Local Government.

Dated this 7th day of September, 1960.

ROBIN J. GARLAND,
Clerk of the Council.

Council Offices,
Bury Fields,
Guildford,
Surrey.

CONTRACTS

NOTTINGHAMSHIRE COUNTY COUNCIL.

SANDIACRE-STAPLEFORD BY-PASS.
FOOTBRIDGE NEAR TOTON LANE.

TENDERS are invited for the CONSTRUCTION of a REINFORCED CONCRETE FOOTBRIDGE OF THREE SPANS over the Sandiacre-Stapleford By-pass (centre span 90ft., side spans 35ft. 3in.), on REINFORCED CONCRETE TRESTLES.

Contract documents may be obtained from the County Surveyor, Shire Hall, Nottingham, on payment of £5 deposit, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn and the return of the Contract documents.

Prospective tenderers may inspect the Contract documents and Drawings at the Offices of the County Surveyor during normal office hours.

Tenders should be delivered in the special envelope provided, to reach the undersigned by FRIDAY, 4th November, 1960.

The Council does not bind itself to accept the lowest or any Tender.

A. R. DAVIS,
Clerk of the County Council.

County Hall,
West Bridgford,
Nottingham.

BOROUGH OF ST. IVES (HUNTS.).
HOUSING.

TENDERS are invited for the ERECTION of 28 OLD PEOPLE'S BUNGALOWS, together with Site Works, at CEMETERY ROAD, St. Ives, Huntingdon. Plans, Bills of Quantities and Form of Tender may be obtained from E. PRICE LAVENDER, F.R.I.B.A., Crown Yard, St. Ives, Huntingdon, on payment of £2 2s., which will be refunded on receipt of a bona-fide Tender (which is not subsequently withdrawn) and the return of the Contract documents.

Tenders, on the form supplied, should be forwarded in the envelope (which will be supplied and which must not bear any mark or name to indicate the sender), to reach the undersigned not later than TUESDAY, 11th October, 1960.

The contractor whose Tender is accepted will be required to enter into a contract and to take out a Contract Guarantee Bond or to deposit other approved security for the complete performance of the Contract. The Council does not bind itself to accept the lowest or any Tender, and reserves the right to accept the whole or part of a Tender.

G. L. DAVY,
Town Clerk.

Town Clerk's Office,
Town Hall,
St. Ives,
Huntingdon.
8th September, 1960.

BOROUGH OF BRIDGWATER.
DURLEIGH ROAD WIDENING.

TENDERS are invited for the WIDENING of DURLEIGH ROAD, which comprises: Tree Felling; 2,000 cu. yd. Bulk Excavation; 600 lin. yd. Kerbing; 310 sq. yd. New Carriageway; 120 lin. yd. Chain Link Fencing; and Tarmacadam Footpaths.

Full particulars and documents may be obtained from the Borough Surveyor, Town Hall, Bridgwater, on payment of a £2 2s. deposit.

Closing date for receipt of Tenders: 10 a.m., FRIDAY, 30th September, 1960.

The Council do not bind themselves to accept the lowest Tender or any Tender.

H. A. CLIDERO,
Town Clerk.

Town Hall,
Bridgwater.
2nd September, 1960.

CITY OF MANCHESTER.

TENDERS invited for the SUPPLY and ERECTION of ONE HEATED TIBBER GREENHOUSE 51ft. x 10ft., at FOG LANE PARK, Manchester.

Details and Form of Tender from Director of Parks, Town Hall, Manchester, must be returned to the undersigned by 4th OCTOBER, 1960, endorsed "Tender for Greenhouse—Fog Lane Park."

PHILIP B. DINGLE,
Town Clerk.

WELTON RURAL DISTRICT COUNCIL.

BARDNEY SEWERAGE SCHEME—CONTRACT NO. 3.

TENDERS are invited for the CONSTRUCTION of approx. 2,128yd. of 9in. and 6in. dia. CONCRETE PIPE SEWERS, MANHOLES and HOUSE CONNECTIONS, at BARDNEY, in the Welton Rural District of Lincolnshire.

Contractors wishing to tender should apply for the documents and Drawings to the Council's Consulting Engineer, JOHN H. HAISTE and PARTNERS, Belmont House, 20 Wood Lane, Headingly, Leeds, 6, enclosing a deposit cheque value Three Guineas, made payable to the Welton R.D.C., such deposit to be refunded upon receipt of a bona-fide Tender and the return of all the documents and Drawings.

Tenders, with the Bills of Quantities priced in ink, are to be submitted to the undersigned not later than 12 Noon on the 5th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender they may receive.

L. H. KING,
Clerk of the Council.

31 Clasketgate,
Lincoln.

MERSEY RIVER BOARD.

BEDFORD-ATHERTON-PENLEACH DRAINAGE.

CONSTRUCTION OF LOW CULVERTS UNDER HOLDEN ROAD, LEIGH.

TENDERS are invited for the CONSTRUCTION of TWIN LOW-LEVEL CULVERTS 9ft. x 6ft. x 110ft. in length, in REINFORCED CONCRETE, under Holden Road, Leigh. The work to be carried out is heading. Specification, Bills of Quantities, Conditions of Contract and Form of Tender may be obtained from J. T. FIRTH, B.Eng., M.I.C.E., Engineer to the Mersey River Board, Liverpool Road, Great Sankey, Warrington, on payment of a deposit of £2 2s., to be refunded on receipt of a bona-fide Tender and return of all documents.

Tenders, in plain sealed envelopes endorsed "Holden Road Contract," must be received not later than MONDAY, 24th October, 1960.

The Board do not bind themselves to accept the lowest or any other Tender.

R. E. WOODWARD,
Clerk of the Board.

Liverpool Road,
Great Sankey,
Warrington.

CONTRACTS

GLOUCESTERSHIRE COUNTY COUNCIL.

TENDERS are invited for the FOLLOWING PRIVATE STREET WORKS:

Knole Close, Lower Almondsbury—approx. length 245yd.
Upper Stone Close, Frampton Cotterell—approx. length 220yd.
Riverwood Estate, Frenchay—approx. length 450yd.

Bills of Quantities, etc., obtainable from the County Surveyor, Quay Street, Gloucester, on payment of £2 2s., returnable on receipt of bona-fide Tenders.

Plans, Specifications, etc., may be inspected at the County Surveyor's Office and at the Divisional Surveyor's Office, Alveston, near Bristol.

Sealed Tenders, endorsed "Tenders for Private Street Works," must be delivered to the County Surveyor by 4th OCTOBER, 1960.

GUY H. DAVIS,
Clerk of the County Council.

COUNTY BOROUGH OF PRESTON.

RESURFACING OF VARIOUS STREETS.

TENDERS are invited for the SUPPLYING and LAYING of approx. 11,200 sq. yd. of HOT ROLLED ASPHALT in THREE STREETS, together with all Preparatory Work to Kerbing, Flagging, etc., in Two of these.

Drawings may be inspected at the Office of the Borough Engineer and Surveyor, Municipal Building, Preston, from whom the Specification and Bill of Quantities may be obtained on payment of a deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender.

Tenders, in the envelope provided, bearing no indication of the sender, must be delivered to the undersigned not later than 10.30 a.m. on MONDAY, 10th October, 1960.

W. E. E. LOCKLEY,
Town Clerk.

Municipal Building,
Preston.

BOROUGH OF MITCHAM.

REMOVAL AND DISPOSAL OF GAS STREET LIGHTING EQUIPMENT.

STAGE XV.

TENDERS are invited for the REMOVAL and DISPOSAL of 386 CAST-IRON LAMP STANDARDS, each approx. 9ft. 6in. high and 2½cwt. in weight, together with Lanterns and Piping, all situated on roads within the Borough.

Forms of Tender, Schedule and Specification may be obtained from the Borough Engineer and Surveyor, Town Hall, Mitcham, at whose Office the General Conditions of Contract may be inspected.

Tenders must be delivered to the undersigned, in the envelope provided, not later than 12 Noon on SATURDAY, 8th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

R. H. WHITE,
Town Clerk.

Town Hall,
Mitcham.

7th September, 1960.

BOROUGH OF MORECAMBE AND HEYSHAM.

ADVANCED SITE PREPARATION—SITE OFF LOWLANDS ROAD.

TENDERS are invited for the CONSTRUCTION of ROADS and SEWERS for Housing Development on a Site off Lowlands Road.

The Form of Tender, Specification and Bill of Quantities may be obtained from, and Plans inspected at, the Office of the Borough Engineer and Surveyor upon payment of a deposit of £2 2s., returnable on receipt of a bona-fide Tender not subsequently withdrawn.

Sealed Tenders, endorsed "Advanced Site Preparation—Off Lowlands Road," to reach me by 9 a.m. on SATURDAY, 1st October, 1960.

ROGER ROSE,
Town Clerk.

7th September, 1960.

CATERHAM AND WARLINGHAM URBAN DISTRICT COUNCIL.

DEMOLITION OF AN AIR-RAID SHELTER AT WARLINGHAM GREEN, WARLINGHAM.

TENDERS are invited for the DEMOLITION and REMOVAL of the AIR-RAID SHELTER situated at WARLINGHAM GREEN, Warlingham.

Specification, Form of Tender and Conditions of Contract may be obtained on application to the Engineer and Surveyor, Council Offices, Caterham. Tenders, in the endorsed envelope provided, must be returned to me not later than 4 p.m. on FRIDAY, 30th September, 1960.

B. J. SMERDON,
Clerk of the Council.

Council Offices,
Caterham, Surrey.

NORTHWICH RURAL DISTRICT COUNCIL.

STREET LIGHTING TENDERS.

TENDERS are invited for the IMPROVEMENT and ALTERATION to EXISTING GROUP "B" STREET LIGHTING INSTALLATIONS, including the Supply and Erection of 206 15ft. mounting height Concrete Columns and 290 Discharge Lanterns and Control Gear, together with the Resiting of Existing Columns.

Form of Tender, Specification and Bill of Quantities are available from the Office of the Engineer and Surveyor, Whitehall, Hartford, Northwich, where the Drawings may be inspected, upon payment of Two Guineas, which will be refunded upon receipt of a bona-fide Tender not subsequently withdrawn, and the return of all documents.

Tenders must be returned in the envelope provided, bearing no name or mark indicating the sender, and must be delivered not later than 10 a.m. on THURSDAY, the 13th October, 1960, to the CLERK OF THE COUNCIL, Whitehall, Hartford, Northwich.

FYLDE WATER BOARD.

GARSTANG BOREHOLE SCHEME.

TENDERS are invited for the FOLLOWING:

(a) Two Submersible Pumps—¾ m.g.d. 170ft. respectively, 320ft.
(b) Two Surface Pumps—1 and ½ m.g.d., respectively, 320ft.
(c) Steel Rising Mains—6in. and 8in. dia.
(d) Electrical Cables.
(e) Control Switchboard.

Further particulars from ENGINEER TO THE BOARD, Sefton Street, Sackpool.

Tenders to be received not later than 18th OCTOBER, 1960.

CONTRACTS

COUNTY OF CORNWALL.

CAMBORNE POLICE STATION.

Notice is hereby given of the intention to LET SEPARATELY the Sub-Contracts for: (a) HEATING, VENTILATION, and HOT- and COLD-WATER SERVICES, and (b) ELECTRICAL SERVICES.

Applications are invited for permission to submit a FIXED-PRICE TENDER for these Sub-Contracts, and should be made to the County Architect, County Hall, Truro, not later than MONDAY, 26th September, 1960, from which a selected number of firms will be invited to tender.

The closing date for receipt of Tenders will be notified when the documents are dispatched.

The Combined Police Authority do not bind themselves to accept the lowest or any Tender, nor will they pay to contractors any fees or expenses incurred in the preparation of a Tender.

T. VERGER,
Clerk of the Cornwall and Isles of Scilly Combined Police Authority.

County Hall,
Truro.

7th September, 1960.

COUNTY BOROUGH OF READING.

OXFORD ROAD IMPROVEMENT—ARGYLE STREET TO WESTERN ELMS AVENUE.

TENDERS are invited for the RECONSTRUCTION of 3,100 sq. yd. (approx.) CARRIAGEWAYS, with Footways and incidental works.

General Conditions and Drawings may be inspected, and Bill of Quantities, etc., obtained, for fee of Two Guineas (cheques payable to Reading Corporation) at Borough Surveyor's Office (P.O. Box 17), Town Hall, Reading. Fee refunded for bona-fide Tender.

Tenders to be delivered to TOWN CLERK, Town Hall, Reading, by 12 Noon on 10th OCTOBER, 1960. No Tender considered unless enclosed in plain sealed envelope endorsed "Oxford Road Improvement," but bearing no indication of sender.

The Corporation do not bind themselves to accept any Tender.

MIDDLESBROUGH COUNTY BOROUGH COUNCIL.

WOOD CASEMENT WINDOWS.

TENDERS are invited for the SUPPLY of PIVOT and SIDE-HUNG CASEMENT WINDOWS in various sizes for 57 HOUSES, the Windows to be constructed generally to the E.J.M.A. Specification No. 2.

Tender Form, Specification and Bill of Quantities may be obtained from the Borough Engineer, Municipal Buildings.

Tenders to be returned, in the envelope provided, not later than the 30th SEPTEMBER.

BOROUGH OF ALTRINCHAM.

SURFACING OF FOOTWAYS IN THE DUNHAM ROAD AREA.

FIXED-PRICE TENDERS are required for the SURFACING of approx. 12,000 sq. yd. of FOOTWAYS with BITUMINOUS MACADAM and ASPHALT, and the RE-LAYING of approx. 3,000 lin. yd. of KERBING with ancillary works.

Tender Form, Specification and Bill of Quantities may be obtained from the Borough Surveyor, Town Hall, Altrincham. Plans may be inspected during normal office hours.

Tenders must be enclosed in a plain sealed envelope endorsed "Tender for Surfacing Footways in Dunham Road Area," bearing no indication of the name of the sender, and must be delivered to the undersigned by 12 Noon on SATURDAY, 24th September, 1960.

E. GRAHAM THOMAS,
Town Clerk.

Town Hall,
Altrincham.

September, 1960.

CITY OF WORCESTER.

ERECTION OF 108 DWELLINGS—WARNDON ESTATE.

TENDERS are invited for the ERECTION of THESE DWELLINGS, comprising Traditional Brick-built Two-storey Blocks of One-bedroom Flats.

Documents obtainable from City Engineer and Surveyor, 22 Bridge Street, Worcester, on deposit of Three Guineas (cheques payable to Worcester Corporation), which will be refunded after receipt of a bona-fide Tender and the return of Tender documents.

Tenders to be posted to the Town Clerk, to arrive not later than MONDAY, 17th October, 1960.

BERTRAM WEBSTER,
Town Clerk.

Guidhall,
Worcester.

CITY OF WORCESTER.

ERECTION OF 10 DWELLINGS—POWELL'S ROW DEVELOPMENT AREA, ST. JOHNS.

TENDERS are invited for the ERECTION of THESE DWELLINGS, comprising Traditional Brick-built Two-storey Blocks of One-bedroom Flats.

Documents obtainable from City Engineer and Surveyor, 22 Bridge Street, Worcester, on deposit of Three Guineas (cheques payable to Worcester Corporation), which will be refunded after receipt of a bona-fide Tender and the return of Tender documents.

Tenders to be posted to the Town Clerk, to arrive not later than MONDAY, 17th October, 1960.

BERTRAM WEBSTER,
Town Clerk.

Guidhall,
Worcester.

BROMSGROVE URBAN DISTRICT COUNCIL.

DUSTBINS.

TENDERS are invited for the SUPPLY and DELIVERY of 1,000 21½ ft. capacity GALVANISED MILD STEEL TAPERED DUSTBINS made to British Standard Specification No. 792 and stamped (on bin and lid) with the letters "B.U.D.C.", not less than 1½in. in size. Delivery date to be stated, and delivery to be made to Alcester Road Depot, Bromsgrove, in one lot.

Tenders, in plain sealed envelopes endorsed "Supply of Dustbins," should be sent to the undersigned not later than 12 Noon on SATURDAY, the 24th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

F. A. JESSOP,
Clerk of the Council.

The Council House,
Bromsgrove.

7th September, 1960.

CONTRACTS

MACCLESFIELD CORPORATION.
HURDSFIELD INDUSTRIAL ESTATE.

The Corporation will shortly be inviting TENDERS from a selected list of contractors for the CONSTRUCTION OF ROADS AND SEWERS on the ABOVE ESTATE.

The Contract involves the Construction of 1,200 lin. yd. of Carriageway; 1,700 lin. yd. of 9in. 12in. and 18in. dia. Concrete Sewers; 800 lin. yd. of 27in. and 110 lin. yd. of 33in. dia. Concrete Sewers.

Contractors experienced in this work are invited to submit their names to the undersigned by MONDAY, 26th September, 1960, and give a list and particulars of similar works they have carried out since 1957.

A list of selected contractors will be prepared, and it is intended that work shall commence in December of this year.

W. ISAAC,
Town Clerk.

Town Hall,
Macclesfield,
Cheshire.

BOROUGH OF COLCHESTER.

CAR PARK AT THE FIRS, MALDON ROAD.

TENDERS are invited for the CONSTRUCTION of a CAR PARK at The Firs, Maldon Road, Colchester, the works consisting of the Demolition of The Firs; Excavation Works and Preparation and Surfacing of the Car Park area in Tarmacadam on Hardcore Foundation, together with ancillary works.

General Conditions of Contract may be inspected at, and Drawings, Specification, Bills of Quantities and Form of Tender obtained from, the Office of the Borough Engineer.

Applications must be accompanied by a deposit of Two Guineas, which will be returned upon receipt of a bona-fide Tender and return of all Contract documents.

Tenders, in plain sealed envelopes which must show no indication of the sender, endorsed "Maldon Road Car Park," must be delivered to the undersigned not later than 12 Noon on MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. S. ORCHARD, A.M.I.C.E.,
Borough Engineer.

1 West Stockwell Street,
Colchester,
Essex.

BOROUGH OF EALING.

STREET LIGHTING—NORTH CIRCULAR ROAD—ST. ANNE'S GARDENS TO UXBRIDGE ROAD.

TENDER A.—SUPPLY of 88 140-W SODIUM LANTERNS, complete with Gears and Lamps.
TENDER B.—SUPPLY and ERECTION of 85 25ft. mounting height STEEL COLUMNS.

Details obtainable from Borough Engineer, Town Hall, Ealing, W.5, on payment of £5 for each Tender. Returnable on receipt of bona-fide Tenders. Tenders to Town Clerk, Town Hall, Ealing, W.5, by Noon, 25th OCTOBER, 1960.

E. J. COPE-BROWN,
Town Clerk.

CITY OF GLOUCESTER.

RELIEF SEWER—STROUD ROAD BRISTOL ROAD.

TENDERS are invited for the LAYING of approx. 2,000 yd. of 24/15in. CONCRETE TUBES, together with Manholes, and ancillary works.

Forms of Tender, Conditions of Contract, Specification and Bill of Quantities may be obtained from the City Engineer and Surveyor, 21 Eastgate Street, Gloucester, on payment of a deposit of Two Guineas, returnable on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, in plain sealed envelopes endorsed "Tender—Relief Sewer, Stroud Road to Bristol Road," to be delivered to the undersigned not later than 10 a.m. on FRIDAY, 7th October, 1960.

A. G. W. BOGGON,
Town Clerk.

Guildhall,
Gloucester.

FEATHERSTONE URBAN DISTRICT COUNCIL.

STREET LIGHTING—CONTRACT NO. 2.

FIXED-PRICE TENDERS are invited from specialist erection contractors for the SUPPLY (from a nominated manufacturer) and INSTALLATION of the FOLLOWING:

60 250-W Mercury Fluorescent Lighting Units.
117 125-W Mercury Fluorescent Lighting Units.
30 85-W Sodium Vapour Lighting Units.
Together with 25ft. and 20ft. Reinforced Concrete Columns, Control Gear, Erection and Wiring of Equipment.

SUPPLY ONLY of the FOLLOWING:
197 60-W Sodium Vapour Lighting Units, incorporating Control Gear.

Drawings may be inspected, Specification, Schedules, Bill of Quantities and Form of Tender obtained on application to the Engineer and Surveyor, Town Hall, Featherstone, upon payment by cheque only of £2 2s. deposit, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, enclosed in a plain sealed envelope endorsed "Street Lighting—Contract No. 2," but otherwise bearing no mark or indication of the sender, shall be forwarded so as to reach the undersigned not later than Noon on MONDAY, the 3rd October, 1960.

H. TATTERSALL,
Clerk of the Council.

Town Hall,
Featherstone,
Yorks. W.R.

8th September, 1960.

CHIGWELL URBAN DISTRICT COUNCIL.

STRADBROKE DRIVE, CHIGWELL (3rd SECTION).

The Council invites TENDERS for WORKS comprising approx. 320 lin. yd. Kerbing, 1,070 sq. yd. Carriageway, 1,120 sq. yd. Footways, and 1,040 sq. yd. Features.

Tender Forms, Bills and Specification on deposit of £2 2s. (returnable after submission of bona-fide Tender, not subsequently withdrawn and return of documents) from Engineer and Surveyor (address below, where Drawings and Contract conditions may be inspected). Contract will provide for Fair Wages Clause and Bond.

Tenders, in sealed envelope (provided), bearing no mark indicating sender, to be delivered to the CLERK OF THE COUNCIL, Council Offices, Old Station Road, Loughton, by 4th OCTOBER, 1960.

The Council does not bind itself to accept the lowest or any Tender.

CONTRACTS
BRECONSHIRE COUNTY COUNCIL.

TENDERS are invited for the ERECTION of a SECONDARY MODERN MIXED SCHOOL for 510 pupils, and having a floor area of approx. 46,000 sq. ft., at PENLAN, Brecon.

Applications for tendering particulars, accompanied by a deposit of £3 3s., must be addressed to the County Architect, Rhylf Offices, Brecon, to reach him not later than 24th SEPTEMBER, 1960.

Particulars and contract documents may be inspected at the County Architect's Department.

C. M. S. WELLS,
Clerk of the County Council.

County Hall,
Brecon.

BRECONSHIRE COUNTY COUNCIL.

ROADS AND BRIDGES DEPARTMENT.

DEMOLITION OF YSTRAD BRIDGE AND CASTLE BRIDGE, YSTRADGYNLAIS.

TENDERS are invited for the DEMOLITION of YSTRAD BRIDGE, YSTRADGYNLAIS, and of CASTLE BRIDGE, ABERCRAVE, and the retention by the contractor of the valuable scrap metal.

Particulars and contract documents may be obtained from the County Surveyor, Watton Offices, Brecon. Tenders, in plain envelopes, endorsed "Demolition of Bridges," must be delivered to the undersigned not later than MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

C. M. S. WELLS,
Clerk of the County Council.

County Hall,
Brecon.

BRECONSHIRE COUNTY COUNCIL.

ROADS AND BRIDGES DEPARTMENT.

SUPPLY OF PLANT.

TENDERS are invited for the SUPPLY of the FOLLOWING ITEMS of PLANT:—

- (1) Four Road Rollers (7-ton), Diesel.
- (2) Four Anti-bump Snow Ploughs.
- (3) Four Winter Grit Spreaders.
- (4) One Engine driven Concrete Vibrator (Poker Type).

Particulars and Forms of Tender from the County Surveyor, Watton Offices, Brecon.

Tenders, in plain sealed envelopes, endorsed "Tender for Plant," must be delivered to the undersigned not later than MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

C. M. S. WELLS,
Clerk of the County Council.

County Hall,
Brecon.

LINDSEY COUNTY COUNCIL.

SITE CLEARANCE, EARTHWORKS AND DRAINAGE CONTRACTS AND FENCING CONTRACTS.

TENDERS are invited for the FOLLOWING CONTRACTS:—

- (1) Gainsborough—Scunthorpe Road, A.159: Blyton.—Improvement at Wharton Hill, junction of A.157 and A.631: Removal of 750 yd. of Hedges, together with Trees, 4,600 cu. yd. of Earthworks and certain Drainage Works.

- (2) Wragby-Louth Road, A.157: (a) Gayton-le-Wold.—Improvement near Grimblethorpe Hall.

- (b) South Elkington.—Improvement at junction of A.157 and A.631: Removal of 1,700 yd. of Hedges, together with Trees, 20,000 cu. yd. of Earthworks, Transporting Spoil from Grimblethorpe to sites within 5 miles, and certain Drainage Works.

- (3) Gainsborough—Scunthorpe Road, A.159: Blyton.—Improvement at Wharton Hill, south of Blyton Village: Supply and Erection of 700 yd. of Lincolnshire Fencing, Field Gates, etc.

- (4) Wragby-Louth Road, A.157: (a) Gayton-le-Wold.—Improvement near Grimblethorpe Hall.

- (b) South Elkington.—Improvement at junction of A.157 and A.631: Supply and Erection of 1,550 yd. of Lincolnshire Fencing, Field Gates, etc.

Contract documents, Drawings, Forms of Tender, etc., for any of the above four contracts obtainable from the COUNTY SURVEYOR, County Offices, Lincoln, to be returned, in the endorsed envelope provided, bearing no name or mark indicating the sender, not later than 26th SEPTEMBER, 1960.

The Council does not bind itself to accept the lowest or any Tender.

THURROCK URBAN DISTRICT COUNCIL.

COUNCIL OFFICES—CAR PARK.

TENDERS are invited for the LAYING of some 70 lin. yd. of 9in. dia. SURFACE WATER SEWER and 1,700 sq. yd. of DENSE TAR SURFACING WORKS in connection with the Reconstruction of the Car Park.

Form of Tender, Specification and Bill of Quantities may be obtained from the Engineer and Surveyor, Council Offices, Whitehall Lane, Grays, on payment of £2 2s. deposit, which will be refunded on receipt of a bona-fide Tender and the return of all documents.

Drawings and General Conditions of Contract may be inspected at the Council Offices during normal office hours.

Tenders, accompanied by Specification and priced Bill of Quantities, in plain sealed envelope endorsed "Council Offices—Car Park," bearing no indication of the tenderer, must be delivered to reach the undersigned by not later than Noon on WEDNESDAY, 21st September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

A. E. POOLE,
Clerk of the Council.

Council Offices,
Whitehall Lane,
Grays.

NORTH EAST WARWICKSHIRE WATER BOARD.

TENDERS to be received not later than 10 a.m. on THURSDAY, 29th September, 1960, are invited for SCRAPING approx. 1,200 lin. yd. of Small Dia. CAST-IRON WATER MAINS.

Further particulars may be obtained from the undersigned on payment of a deposit of £2 2s., by cheque, made payable to the Board.

G. ASHTON, A.M.I.C.E., A.M.I.W.E.,
Engineer and Manager.

Pool Bank Street,
Nuneaton.

7th September, 1960.

CONTRACTS

COUNTY BOROUGH OF BLACKBURN.

TENDERS invited for the SUPPLY and DELIVERY of the FOLLOWING CLOTHING:—

380 Blue Overall Jackets—Quality X3111/2.

380 Blue Overall Trousers, Bib and Brace—Quality X3111/2.

Samples and further particulars from Cleansing Depot, Stansfeld Street.

Tenders, in letter form in a suitably endorsed envelope, to me by 3rd OCTOBER, 1960. Sample cloth (not sample garments) should accompany the Tender.

FRANK SQUIRES,
Town Clerk.

BOROUGH OF COLCHESTER.

TO BUILDING CONTRACTORS.

TENDERS are invited for the ERECTION of PROPOSED ADMINISTRATION BLOCK, SHRUB END REFUSE TIP, Colchester.

Bills of Quantities and Form of Tender can be obtained from the Council's Architects, MESSRS. BAKER AND BURTON, 3 Church Street, Colchester, accompanied by a deposit of Two Guineas, which will be returnable on receipt of a bona-fide Tender.

Drawings and other particulars can be seen at the Architect's Office.

Tender are to be made to the Architects not later than 1st OCTOBER, 1960.

Tenders, in plain envelopes marked "Tender for Proposed Administration Block—Shrub End Refuse Tip, Colchester," must be addressed to the undersigned and delivered by 18th OCTOBER, 1960.

N. CATCHPOLE,
Town Clerk.

Town Hall,
Colchester.

September, 1960.

BOROUGH OF ACCRINGTON.

ASPHALT SURFACING.

TENDERS are invited for the SUPPLY and LAYING by MECHANICAL SPREADER AND FISHER of approx. 17,220 sq. yd. of HOT ROLLED ASPHALT on TRUNK, COUNTY AND DISTRICT ROADS in the Borough.

Details and Form of Tender may be obtained from the Borough Engineer and Surveyor, 44 Union Street, Accrington.

Tenders must be returned, in the envelope provided, to the TOWN CLERK, Town Hall, Accrington, not later than Noon on the 28th SEPTEMBER, 1960.

CITY AND COUNTY OF NEWCASTLE UPON TYNE.

The COUNCIL are prepared to receive TENDERS for the ERECTION of a WELFARE CENTRE with Two Flats above, at FENHAM HALL DRIVE, FENHAM, Newcastle upon Tyne.

Bills of Quantities and Forms of Tender may be obtained on application in writing to MESSRS. RYDER AND YATES, Architects, of Churchill House, 87 Jesmond Road, Newcastle upon Tyne, as from 15th September, 1960, where Plans and Conditions of Contract may be seen.

Sealed Tenders must reach the Town Clerk at the Town Hall, Newcastle upon Tyne, not later than 10 a.m. on 5th OCTOBER, 1960. No Tender will be received except in the official envelope provided, which must not bear any name or mark indicating the sender.

The Committee do not bind themselves to accept the lowest or any Tender.

JOHN ATKINSON,
Town Clerk.

Town Hall,
Newcastle upon Tyne.

2nd September, 1960.

CITY OF LEICESTER.

SCRAPTOFT (THURNBY) HOUSING ESTATE—CONTRACT NO. 9.

CONSTRUCTION OF ROADS, SEWERS, FOOTWAYS AND VERGES.

TENDERS are invited from contractors experienced in similar work for the FOLLOWING:

4,900 sq. yd. Concrete Carriageway.
4,600 sq. yd. Bitumen Macadam Footway.
1,450 lin. yd. 9in. dia. Sewers, together with Manholes.

8,900 sq. Turfed and Seeded Areas.
Full details and Forms of Tender are available from the undersigned on payment of One Guinea, refundable on receipt of a bona-fide Tender.

Tenders to be returned, in the official envelope provided, by 4.30 p.m. on MONDAY, 3rd October, 1960.

JOHN L. BECKETT, M.I.C.E.,
City Surveyor.

Town Hall,
Leicester.

THE URBAN DISTRICT COUNCIL OF ABERDARE.

CONSTRUCTION OF SERVICE RESERVOIR.

TENDERS are invited on a fixed-price basis from suitably experienced contractors for the CONSTRUCTION of a 350,000-gallon capacity SERVICE RESERVOIR and ancillary PIPEWORK.

Tender documents may be obtained from the Council's Consulting Engineers, Messrs. C. D. C. BRAINE AND PARTNERS, Iotham's Buildings, 26/27 St. Mary Street, Cardiff, upon deposit of Three Guineas (cheques to be made payable to the Council), which sum will be returned upon receipt of a bona-fide Tender, not subsequently withdrawn.

Drawings may be inspected at the Offices of the Consulting Engineers, or of the Engineer and Surveyor to the Council at the Vestry Hall, Aberdare. Tenders, endorsed "Service Reservoir," in plain sealed envelopes, bearing no mark or indication of the sender, must reach me before Noon on MONDAY, 17th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

D. G. JAMES,
Clerk of the Council.

Town Hall,
Aberdare.

Glamorgan.

COVENTRY CORPORATION.

The above Corporation invite TENDERS for SUPPLY of the FOLLOWING MATERIALS during year ending 30th November, 1961:

Brushes: Cotton Waste: Rags: Rope, and Rubber Boots.

Tender Forms for Schedule 7 and Particulars from CITY ENGINEER, Council House, Coventry, returnable by First Post, 6th OCTOBER, 1960.

CONTRACTS

BOROUGH OF WALTHAMSTOW.
ENGINEER AND SURVEYOR'S DEPARTMENT.REPAIR AND REINSTATEMENT OF
CARRIAGEWAYS AND FOOTWAYS.

TENDERS are invited for the ABOVE WORK in Walthamstow, which will be consequent, generally, upon operations carried out by the Public Utility Undertakings (which may be extended for minor highway reconstruction works), and the Contract will run for a period not exceeding two years, subject to three months' notice of termination on either side. Contract documents may be obtained from the Borough Engineer and Surveyor, Town Hall, Walthamstow, London, E.17, on receipt of a deposit for £2 2s., which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn, or the return of the whole of the documents supplied. Tenders must be delivered, in the sealed envelopes provided, to the undersigned not later than Noon on MONDAY, 3rd October, 1960.

G. A. BLAKELEY,
Town Clerk.**WALTON AND WEYBRIDGE URBAN
DISTRICT COUNCIL.**EXTENSION TO WALTON PARK AND
CONSTRUCTION OF NEW CAR PARK.

TENDERS are invited for the CONSTRUCTION of the ABOVE WORKS.

The work comprises the Excavation of the Existing Soil, Laying Hardcore and Providing the Carriageway with a Tarmacadam Surfacing, the Construction of a Footway with Bitumen Macadam Surfacing, the Laying of 12in. and 15in. dia. Surface Water Sewers, together with other incidental works.

The area of the Carriageway will be approx. 1,700 sq. yd., and that of the Car Park 6,800 sq. yd.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans and Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Walton Park Extension and New Car Park," and delivered to the undersigned not later than 5 p.m. on TUESDAY, 4th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.**WALTON AND WEYBRIDGE URBAN
DISTRICT COUNCIL.**PRELIMINARY ROADWORKS—SANDY LANE
HOUSING ESTATE.

TENDERS are invited for the CONSTRUCTION of SEWERS and PRELIMINARY ROADWORKS for the Sandy Lane Housing Estate.

The work comprises the Construction of approx. 710 lin. yd. of 9in. dia. and 110 lin. yd. of 6in. dia. Stoneware Sewer Water Sewers; 1,060 lin. yd. of 18in. dia. and 360 lin. yd. of 9in. dia. Concrete Surface Water Sewers; and 3,850 sq. yd. of Hardcore Foundations to Roads, together with Manholes, Gullies, and other incidental works.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans and Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Sandy Lane," and delivered to the undersigned not later than 5 p.m. on THURSDAY, 6th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.**WALTON AND WEYBRIDGE URBAN
DISTRICT COUNCIL.**

RESURFACING FOOTWAYS.

TENDERS are invited for the RESURFACING of VARIOUS FOOTWAYS in the District.

The work comprises the Breaking-up and Excavation of Existing Footways, and the Resurfacing in Bituminous Macadam. The total area involved will be not less than 6,000 sq. yd.

The Specification and Tender may be obtained from, and the Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Resurfacing of Footways," and delivered to the undersigned not later than 5 p.m. on TUESDAY, 4th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.**WALTON AND WEYBRIDGE URBAN
DISTRICT COUNCIL.**

GATE ROAD, WEYBRIDGE.

TENDERS are invited for the CONSTRUCTION of the ABOVE ROAD.

The work comprises the Excavation of the Existing Grass Verges, Laying of Hardcore and Bituminous Macadam Surfacing, the Construction of Footways with Bituminous Macadam, the Laying of a 9in. dia. Surface Water Sewer, together with other incidental work. The area of the Carriageway will be approx. 700 sq. yd.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans and Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Gate Road, Weybridge," and delivered to the undersigned not later than 5 p.m. on TUESDAY, 4th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.

CONTRACTS

BOROUGH OF BEXLEY.SURFACE WATER SEWER AND ROAD
IMPROVEMENT WORKS.

TENDERS are invited for the RECONSTRUCTION of CARRIAGEWAY and Footways, and for the RENEWAL and ENLARGEMENT of the EXISTING SURFACE WATER SEWER at BELLEGROVE ROAD, Welling, and ancillary works. The works will affect the Surface Water Sewer for a total length of 1,070 yd., varying between 9in. and 33in. dia., and will include 15 yd. of Box Culvert.

The Road Improvement comprises the Widening of the Existing Carriageway to 40ft. and reduction of the two Footways to 10ft. The Carriageway will be constructed of Dry Lean Concrete and Hot Rolled Asphalt, and Footways will be flagged. Overall width of highway 60ft., length about 1,000 yd.

Tender documents and Conditions may be obtained from the Borough Engineer, West Lodge, Broadway, Bexleyheath, Kent, on receipt of Five Guineas deposit by crossed cheque payable to Bexley Corporation. This deposit will be returned on receipt of a bona-fide Tender not subsequently withdrawn.

Working Drawings may be inspected at the Office of the Borough Engineer.

Tenders must be received by the undersigned not later than Noon on FRIDAY, 7th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

ARTHUR GOLDFINCH,
Town Clerk.**CITY OF ST. ALBANS.**

ASHLEY ROAD BRIDGE.

TENDERS are invited from manufacturers of pre-cast prestressed concrete products for the SUPPLY and DELIVERY TO SITE of all NECESSARY UNITS of their own design for the CONSTRUCTION of a HIGHWAY BRIDGE DECK of approx. 29ft. span and 47ft. wide. Units which have to be tensioned on site will not be considered.

Particulars of requirements and Form of Tender may be obtained on application to the City Engineer and Surveyor, 16 St. Peter's Street, St. Albans.

Tenders are to be returned to the undersigned by Midday on THURSDAY, 29th September.

B. V. ENTWISTLE,
Town Clerk.38 St. Peter's Street,
St. Albans,
Herts.**AMERSHAM RURAL DISTRICT
COUNCIL.**

ENGINEER AND SURVEYOR'S DEPARTMENT.

COCKPIT HOLE, HEATH END—DRAINAGE
SCHEME.

The Council will shortly be inviting TENDERS for the ABOVE SCHEME, which comprises the Construction of 1,350 yd. of 6in. dia. Sewer in Flexibly Jointed Cast Iron Pipe, and 1,025 lin. yd. of 12in. dia. Boundaries, together with Permanent Reinstatement and all other ancillary works.

It is the Council's intention to invite Tenders from a selected number of contractors.

Contractors who wish to be considered should forward their names and addresses to the Council's Engineer and Surveyor, MR. J. GODBEHERE, A.M.I.Mun.E., Elmodesham House, 42 High Street, Amersham, Bucks., so as to arrive not later than First Post on 30th SEPTEMBER. Proof of the execution of similar work should be given.

H. E. BUXTON,
Clerk to the Council.Elmodesham House,
42 High Street,
Amersham,
Bucks.**WOKINGHAM RURAL DISTRICT
COUNCIL.**

MAIN DRAINAGE OF SHINFIELD—STAGE III.

SCHOOL GREEN AND THREE MILE CROSS AREAS.

FIXED-PRICE TENDERS are invited for: (a) the LAYING of 5,100 lin. yd. of 6in. and 7in. dia. SALT GLAZED WARE PIPES, and 1,025 lin. yd. of 12in. dia. SPUN-IRON PIPES, or alternatively, 5,100 lin. yd. of 6in. and 8in. dia. PITCH-FIBRE PIPES and 1,025 lin. yd. of 12in. dia. SPUN-IRON PIPES; and (b) the CONSTRUCTION of 90 MANHOLES, TWO PUMPING STATIONS and RISING MAINS.

Tender documents may be obtained from the Council's Chief Engineer on payment of a deposit of Three Guineas, returnable on receipt of a bona-fide Tender not subsequently withdrawn.

Drawings and Conditions of Contract may be inspected at the Council Offices during normal office hours.

Tenders, in plain sealed envelopes endorsed "Tender—Main Drainage of ShinfIELD—Stage III: School Green and Three Mile Cross Area," must be delivered to the undersigned not later than Noon on MONDAY, 10th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

GEOFFREY HEATH,
Clerk of the Council.Council Offices,
Shute End,
Wokingham,
Berk.**CLARE RURAL DISTRICT COUNCIL.**

WATER SUPPLY.

The above-named Council invite TENDERS for the EXECUTION OF WORKS OF WATER SUPPLY, comprised in the Furnishing and Laying of about 10,000 yd. of 10in. Spun-iron Water Mains, and other appurtenant works.

Contractors, who must have had considerable experience in similar work, and who are desirous of tendering, should forward their names and addresses to MESSRS. D. BALFOUR AND SONS, M.M.I.C.E., Consulting Engineers, 131 Victoria Street, Westminster, S.W.1, accompanied by a cheque deposit of Five Pounds, made payable to the Clare Rural District Council, not later than Friday, 30th September, 1960, after which full particulars will be forwarded. The deposit will be returned on receipt of a bona-fide Tender and on return of all printed forms and plans after the Contract is let.

Tenders, in plain sealed envelopes endorsed "Tenders for Water Supply," must be sent to the undersigned by a date given by the Engineers.

The Council do not bind themselves to accept the lowest or any Tender.

JOHN ALLPRESS,
Clerk of the Council.Council Offices,
Clare,
Sudbury, Suffolk.

CONTRACTS

COUNTY BOROUGH OF DEWSBURY.
THORNHILL LEES REDEVELOPMENT SCHEME
NO. 1—82 DWELLINGS.

TENDERS are invited from building contractors for the ERECTION of the ABOVE DWELLINGS, including Construction of Roads, etc.

Plans and Conditions of Contract may be seen at, and Specifications, Bills of Quantities and Forms of Tender obtained from, the Office of the Borough Architect and Building Surveyor, Town Hall, Dewsbury, on payment of a deposit of £3, which will be returnable on receipt of a bona-fide Tender.

Tenders, in plain sealed envelopes endorsed "Tender—Thornhill Lees Redevelopment Scheme No. 1," must be delivered to me by Noon on MONDAY, 17th October, 1960.

A. NORMAN JAMES,
Town Clerk.Town Hall,
Dewsbury.

9th September, 1960.

BOROUGH OF STRATFORD-UPON-AVON.

ADDITIONAL BOREHOLE.

TENDERS are invited from experienced borehole contractors for the SINKING of a BOREHOLE at HYON HILL, WARWICK ROAD, Stratford-upon-Avon, and TESTING the SAME for yield.

The Borehole will be lined with steel tubes, have a clear diameter of 15in., and will extend approx. 700ft. below ground level.

General Conditions of Contract, Specification, and Form of Tender may be obtained on application to the undersigned, on receipt of a deposit of £3, made payable to the Stratford-upon-Avon Corporation, which will be refunded on receipt of a bona-fide Tender and all documents issued by the Corporation.

Tenders, in plain sealed envelopes endorsed "Tender for Borehole," should be addressed and delivered to the Town Clerk, Municipal Offices, Rother Street, Stratford-upon-Avon, and received by not later than Noon on WEDNESDAY, 19th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

P. C. SMART, M.I.C.E.,
Borough Engineer and Surveyor.Municipal Offices,
Rother Street,
Stratford-upon-Avon,
September, 1960.**BOROUGH OF WREXHAM.**(a) ROAD IMPROVEMENT AT THE JUNCTION OF
RUTHIN, BRADLEY AND VICTORIA ROADS.
(b) ROADWORKS AND SEWERS—LIGHT INDUSTRIAL SITE, QUEENS PARK.

FIXED-PRICE TENDERS are invited for the ABOVE CONTRACTS.

Drawings and General Conditions of Contract may be inspected, and Specifications, Bills of Quantities and Forms of Tender obtained from MR. J. M. DAVIES, Borough Engineer and Surveyor, 31 Chester Street, Wrexham, on payment of a deposit of £2 2s. in respect of each Contract, which will be refunded on receipt of a bona-fide Tender.

Tenders, in the envelopes provided, must be sealed and delivered to the undersigned not later than 12 Noon on MONDAY, 2nd October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

PHILIP J. WALTERS,
Town Clerk.Guildhall,
Wrexham.

September, 1960.

BOROUGH OF ALTRINCHAM.

TENDERS are invited for the RENEWAL of the CAST-IRON LOW-PRESSURE HEATING BOILERS at the CENTRAL LIBRARY and STAMFORD HALL, ALTRINCHAM, and the REPLACEMENT of the existing MECHANICAL STOKERS by suitable OIL-BURNING EQUIPMENT.

The existing installation may be inspected by appointment with the Chief Librarian or Stamford Hall Manager.

Copies of the Specification, together with the Form of Tender, may be obtained on application.

Tenders, in a plain sealed envelope, endorsed "Heating Installation," addressed to the undersigned, must be delivered not later than THURSDAY, 22nd September, 1960.

The Council does not bind itself to accept the lowest or any Tender.

E. GRAHAM THOMAS,
Town Clerk.Town Hall,
Altrincham.

8th September, 1960.

CITY OF YORK.

STREETS AND BUILDINGS COMMITTEE.

HULL ROAD (PART) IMPROVEMENT.

TENDERS are invited for the CONSTRUCTION of approx. 320 lin. yd. of 9in. dia. STONEWARE PIPE, BRICK MANHOLES and the RECONSTRUCTION of FOOTPATHS and VERGES and incidental works.

The General Conditions of Contract and Drawings may be inspected at, and the Specification, Bill of Quantities and Form of Tender obtained from, the Office of the undersigned on deposit of £2 (cheque) to be crossed and made payable to York Corporation, which will be refunded on receipt of a bona-fide Tender, not subsequently withdrawn.

The completed Form of Tender shall be delivered to the undersigned, in the official envelope provided, endorsed "Hull Road Improvement," not later than Noon on TUESDAY, 11th October, 1960.

The lowest or any Tender will not necessarily be accepted.

CHAS. J. MINTER,
City Engineer, Surveyor
and Planning Officer.7 St. Leonard's Place,
York.**CHISLEHURST AND SIDCUP URBAN
DISTRICT COUNCIL.**

COLD ASPHALT SURFACING.

TENDERS are invited for RESURFACING 12,000 sq. yd. of BROMLEY ROAD, CHISLEHURST, and MAIN ROAD, SIDCUP. Documents from the Engineer and Surveyor, Manor House, Sidcup, on deposit of Two Guineas. Tenders to the undersigned, in the envelope provided, not later than 30th SEPTEMBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

T. W. FAGG,
Clerk of the Council.Council Offices,
Sidcup Place,
Sidcup.

CONTRACTS

COUNTY BOROUGH OF OLDHAM.

HOUSING COMMITTEE.

FITTON HILL ESTATE EXTENSION—
27 TWO-BEDROOM HOUSES.
25 THREE-BEDROOM HOUSES.
20 TWO-BEDROOM TWO-STOREY FLATS.
14 AGED PERSONS' BUNGALOWS.
8 BRICK GARAGES.

The HOUSING COMMITTEE are prepared to receive FIXED-PRICE TENDERS for the ERECTION of the above 106 PERMANENT TRADITIONAL DWELLINGS and eight BRICK GARAGES on the EXTENSION to the FITTON HILL ESTATE from firms experienced in the execution of such contracts.

Drawings may be inspected and Bills of Quantities, Forms of Tender and General Conditions may be obtained from Messrs. CARRON AND MIDDLETON, F.A.R.I.C.S., Chartered Quantity Surveyors, 21 Queen Street, Oldham, on payment of a deposit of two guineas, which will be returned on receipt of a bona-fide Tender, not subsequently withdrawn. Cheques, etc., to be crossed and made payable to the Borough Treasurer, Oldham Corporation. The Bills of Quantities will be available on and after MONDAY, 19th September.

Tenders will only be considered if they are submitted, in the envelope provided, sealed and delivered not later than 10 a.m., MONDAY, October 10th, 1960. The Corporation do not bind themselves to accept the lowest or any Tender. The contract will be subject to the Standing Orders of the Council, which include a requirement, in this case, for the provision of sureties.

EDWARD HAINES,
Town Clerk.

METROPOLITAN BOROUGH OF CAMBERWELL.

TENDERS invited for the ERECTION of a STORES BUILDING, ADDITIONS to existing BUILDING and FUEL STORE, SUBSTRUCTURE for ERECTION of PLANT HOUSE and FRAMES for the HORTICULTURAL NURSERY at HONOR OAK PARK, S.E.25. Conditions, Specifications and Form of Tender may be obtained from the Borough Engineer, Town Hall, S.E.5, on a deposit of two guineas.

Sealed Tenders, in the envelope provided, must reach the TOWN CLERK, Town Hall, S.E.5, not later than 10 a.m. on WEDNESDAY, 19th October, 1960.

METROPOLITAN BOROUGH OF CAMBERWELL.

TENDERS are invited for SUPPLYING: (a) Simon Hydraulic PLATFORM, P30, on Bedford Diesel 3-ton chassis; (b) Eagle 3-stage TOWER WAGON, Type A, on Bedford Diesel 3-ton chassis; (c) Two TOWER VANS, Rawlinson B55 Type Tower on Bedford Petrol 10.12cwt. "CAL" VANS; (d) Two Bedford Petrol 10.12cwt. "CAL" VANS.

Tender Forms on application to BOROUGH ENGINEER AND SURVEYOR, Town Hall, S.E.5. Closing date for Tenders, 27th SEPTEMBER, 1960.

BOROUGH OF WATFORD.

WATFORD PUBLIC BATHS.

REDECORATION AND ALTERATION.

TENDERS are invited for DECORATING and BUILDING WORKS at WATFORD PUBLIC BATHS. The works are to be carried out during December, 1960, and January and February, 1961, in conjunction with extensive heating and other specialist works. The contractor will be required to co-ordinate specialist works as nominated sub-contractors and provide scaffolding and attendance. He will also be required to carry out general redecoration on certain minor building works, and hacking to wall surfaces.

Applications for documents, accompanied by a deposit of £2 ss., which will be returned on receipt of a bona-fide Tender, not subsequently withdrawn, must be made to Mr. F. C. SAGE, Borough Engineer and Surveyor, Town Hall, Watford, not later than 2 p.m. on MONDAY, 26th September, 1960.

Contract documents will be forwarded as soon as possible after that date.

Tenders will be required by 17th OCTOBER, 1960.

GORDON H. HALL,
Town Clerk.

Town Hall,
Watford,
September, 1960.

CITY OF LIVERPOOL.

TENDERS invited for ALTERING and EXTENDING LIFTS at POLICE HEADQUARTERS, HARDMAN STREET, Liverpool, 1. Documents from City Engineer and Surveyor, Municipal Buildings, Liverpool, 2. Tenders returnable by 12th OCTOBER, 1960. (1.6382)

THOMAS ALKER,
Town Clerk.

BEESTON AND STAPLEFORD URBAN DISTRICT COUNCIL.

BEESTON SEWAGE WORKS.

REMOVAL OF SEWAGE SLUDGE.

Contractors are invited to TENDER for the LIFTING and CARTING of SEWAGE SLUDGE from the BEESTON SEWAGE WORKS, estimated at approx. 2,300 cu. yd., to specified points within the Urban District. Conditions of Contract and Forms of Tender are available from the Engineer and Surveyor, Town Hall, Beeston, upon payment of a deposit of £1 ss., and the closing date for receipt of Tenders is the 3rd OCTOBER, 1960.

H. D. JEFFRIES,
Clerk of the Council.

Town Hall,
Beeston,
Nottingham.

BEESTON AND STAPLEFORD URBAN DISTRICT COUNCIL.

CULVERTING OF WATERCOURSES—
CENTRAL AVENUE, STAPLEFORD.

TENDERS are invited for the CULVERTING of two WATERCOURSES. The work entails the Excavation, Provision and Laying of 526 lin. yd. of 33in. dia. Reinforced Concrete Pipes and 264 lin. yd. of 9in. dia. Concrete Pipes.

Specification, Bill of Quantities and Form of Tender may be obtained from the Engineer and Surveyor, Town Hall, Beeston, Nottingham, upon payment of a deposit of two guineas, which will be returnable upon receipt of a bona-fide Tender, not subsequently withdrawn.

Tenders to be returned to the undersigned by 10th OCTOBER, 1960, in plain envelopes, marked "Tender for Central Avenue Culverts."

H. D. JEFFRIES,
Clerk of the Council.

Town Hall,
Beeston,
Nottingham.

CONTRACTS

COUNTY BOROUGH OF NEWPORT.

TENDERS are invited for the COMPLETION of ROADS and FOOTWAYS on the ST. JULIAN'S ESTATE. General Conditions, Specifications and Bills of Quantities may be obtained from and Drawings inspected at the Office of the Borough Engineer, Civic Centre, Newport, Mon., on production of the Borough Treasurer's receipt for a deposit of £2 ss., which will be returned on receipt of a bona-fide Tender.

Tenders, enclosed in the envelope provided, and endorsed "St. Julian's Housing Estate," and not bearing any name or mark indicating the sender, must reach the TOWN CLERK not later than 1 p.m., SEPTEMBER 28th, 1960.

SUB-CONTRACTORS.—BRICKLAYERS, CARPENTERS and GROUND WORKERS WANTED for contracts, Funbridge Wells/Edebridge areas.—Apply: PERRYMAN (BUILDING CONTRACTORS), LTD., 7 Castle Street, Tonbridge. Telephone 2251.

For Contracts received too late for
classification see page 1289

APPOINTMENTS VACANT

BARBADOS.

PUBLIC WORKS DEPARTMENT.

CONSTRUCTION ENGINEER.

Qualifications: Candidates should be either A.M.I.C.E. or A.M.I.Struct.E. or A.R.I.C.S.(Building), with in each case not less than five years' experience in the construction of large multi-storeyed buildings in steel or reinforced concrete.

Duties: Principally to collaborate with, and as deputy to the Architect in charge, working with Consulting Engineers in the construction of a 500-bed General Hospital.

Salary: £1,666 p.a. plus a temporary cost-of-living allowance of £22 10s. p.a.

Term of Office: On contract for one tour of three years.

Free passages. Generous leave.

Apply DIRECTOR OF RECRUITMENT, Colonial Office, London, S.W.1. Give name and age, and brief details of qualifications and experience. Quote BCD112 28 03 D14.

COUNTY BOROUGH OF WEST BROMWICH.

APPOINTMENT OF ROAD FOREMAN.

APPLICATIONS are invited for the ABOVE APPOINTMENT. Salary will be Misc. Grade VI (£715 + 20 to £775 per annum).

This appointment will rank next in seniority to the Highways Superintendent. For the information of candidates, the post of Highway Superintendent, due to retirement, will become vacant in approx. two years' time.

The appointment will be subject to the National Joint Council Conditions of Service, to a medical examination, and to one month's notice on either side.

Applications, giving full particulars of experience, age, qualifications, etc., together with the names and addresses of two referees, should be sent to the undersigned by 21st SEPTEMBER, 1960.

W. H. GREENWOOD,
Borough Engineer and Surveyor.

Town Hall,
West Bromwich.

COUNTY BOROUGH OF ROTHERHAM.

APPOINTMENT OF SENIOR ENGINEERING ASSISTANT—GRADE IV (£1,065-£1,220).

APPLICATIONS are invited for an APPOINTMENT of SENIOR ENGINEERING ASSISTANT in the Office of E. J. MANSON, B.Eng., A.M.I.C.E., M.I.Mun.E., Borough and Water Engineer, on Grade IV of the A.P.T. Division of Scales, commencing at a salary of £1,065 per annum and rising by annual increments to a maximum of £1,220 per annum.

Applicants must be Corporate Members of the Institution of Civil Engineers and/or of the Institution of Municipal Engineers, and must have had a good general experience of the work of a Municipal Engineer's Office.

The person appointed will be required to pass a medical examination and to contribute to the superannuation scheme.

Housing accommodation can be provided if necessary. Removal expenses up to a maximum of £25 will be paid by the Council to the person appointed, if married.

Applications, endorsed "Senior Engineering Assistant," stating age, qualifications, and details of experience, together with the names of two referees, should be received by me not later than FRIDAY, 23rd September.

JOHN S. WALL,
Town Clerk.

Municipal Offices,
Howard Street,
Rotherham,
September, 1960.

THE CHESHIRE RIVER BOARD.

BIRKET AND FENDER IMPROVEMENT SCHEME.

ASSISTANT RESIDENT ENGINEER.

APPLICATIONS are invited for the TEMPORARY APPOINTMENT of an ASSISTANT RESIDENT ENGINEER on the above scheme. The works include the construction of a flood relief pumping station in a reclaimed pool on the Morpeth Branch Dock, Birkenhead; diversionary works to the Great Culvert; a discharge culvert constructed in tunnel in the dock wall, and the erection of pumping plant.

The Assistant Resident Engineer will be required to supervise underwater work carried out by divers, and will be required to pass a medical examination for diving up to a maximum depth in water of 40ft. Salary £1,200 per annum for the duration of the appointment, which is expected to be about 18 months, commencing December, 1960.

Conditions of Service as Parts 2, 4 and 5 only of the Scheme of Conditions of Service issued by the National Joint Council for Local Authorities, Administrative, Professional, Technical and Clerical Staffs.

Applications, endorsed "Assistant Resident Engineer," giving full particulars of age, qualifications, experience, and also the names of two persons to whom reference can be made, should reach the undersigned not later than 3rd OCTOBER, 1960.

SANDFORD FAWCETT AND PARTNERS,
Consulting Civil Engineers.

53 Victoria Street,
Westminster, S.W.1.

APPOINTMENTS VACANT

BRECONSHIRE COUNTY COUNCIL.

APPOINTMENT OF ENGINEERING ASSISTANT.

APPLICATIONS are invited for the APPOINTMENT of ENGINEERING ASSISTANT, Special Grade (£785-£1,070 p.a.). Commencing salary in accordance with qualifications and experience.

Applicants should be experienced in the preparation of details of road and bridge improvement schemes, and preference will be given to Corporate Members of the Institution of Civil Engineers or the Institution of Municipal Engineers.

The appointment will be subject to the National Scheme of Conditions of Service, to the Local Government Superannuation Acts, to the passing of a medical examination, and will be terminable by one month's notice.

Particulars and forms of application from County Surveyor, Watton Offices, Brecon. Applications to be delivered to the undersigned not later than MONDAY, 3rd October, 1960.

C. M. S. WELLS,
Clerk of the County Council.

County Hall,
Brecon.

MERIONETH COUNTY COUNCIL.

HIGHWAYS AND BRIDGES DEPARTMENT.

APPLICATIONS are invited for the FOLLOWING PERMANENT APPOINTMENTS in the County Surveyor's Department:

(a) Two Assistant Engineers—Salary Grade A.P.T. IV of the National Joint Council Scales; and
(b) Assistant Engineer—Salary Grade A.P.T. II of the National Joint Council Scales.

Applications for appointments (a) should have had good experience in the design and preparation of road and bridge schemes, and be capable of supervising the actual works whether executed by contract or direct labour.

Preference will be given to candidates who are Associate Members of the Institution of Civil Engineers and/or of the Institution of Municipal Engineers.

Applicants for appointment (b) should have had experience in the design and preparation of road and bridge schemes.

Preference will be given to candidates who are suitably qualified and have had previous experience under a County Authority.

Applications, on the Council's application forms, must be received by the COUNTY CLERK, County Offices, Peniarth, Dolgellau, by not later than MONDAY, 3rd October, 1960.

BOROUGH OF ENFIELD.

(Non-County Borough in the County of Middlesex. Pop. 109,700; Area 12,400 Acres.)

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

AMENDED ADVERTISEMENT.

APPOINTMENT OF CLEANSING SUPERINTENDENT.

APPLICATIONS are invited for the PERMANENT APPOINTMENT of CLEANSING SUPERINTENDENT at a salary in accordance with A.P.T. IV of the National Scheme of Conditions of Service (£1,065-£1,220 per annum) plus a London Weighting allowance of £45 per annum. The commencing salary will be fixed according to qualifications and experience.

Applicants must hold the Testamur of the Institution of Public Cleansing and have considerable experience in the supervision and organisation of the collection and disposal of refuse, and the operation and maintenance of the Council's transfer stations.

An essential user car allowance is payable.

A five-day week is at present in operation. Particulars and Conditions of the Appointment, obtainable from the Borough Engineer and Surveyor, MR. H. D. PEAKE, M.Sc.(Eng.), M.Inst.P.C., 7 Little Park Gardens, Enfield, Middx., and applications are to be returned to the undersigned by MONDAY, 26th September, 1960.

CYRIL E. C. R. PLATTEN,
Town Clerk.

Public Offices,
Gentleman's Row,
Enfield, Middx.

CITY OF GLOUCESTER.

APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the APPOINTMENT of RESIDENT ENGINEER to supervise the construction of the sewage treatment works within the city boundary.

The works are to be carried out by contract under the direction of the Corporation's Consulting Engineers, MESSRS. JOHN TAYLOR AND SONS, Artillery House, Artillery Row, Westminster, S.W.1. The post is temporary, and expected to last about 2½ years, terminable at one month's notice by either side.

Candidates should have received a professional engineering training and should have a sound knowledge of reinforced concrete construction.

The salary will be £1,500 per annum. The successful candidate will be required to undergo a medical examination for superannuation purposes.

The Scheme of Conditions of Service for Local Authorities' Administrative, Professional, Technical and Clerical Services will apply.

The Council may be able to assist with housing accommodation if required.

Applications, endorsed "Resident Engineer," stating personal particulars of candidate, professional training and qualifications, previous experience, with dates, and giving the names and addresses of two persons to whom reference can be made, must be delivered to the undersigned by the 26th SEPTEMBER, 1960.

A. G. W. BOGGOON,
Town Clerk.

Guildhall,
Gloucester.

HOLYHEAD URBAN DISTRICT COUNCIL.

APPOINTMENT OF SURVEYOR.

APPLICATIONS are invited for the ABOVE APPOINTMENT at a salary in accordance with Chief Officers' Scale (population 10,000-15,000). Commencing salary dependent upon qualifications and experience. Usual conditions attaching to Local Government Service apply.

Applications, stating age, qualifications, appointments, and experience, together with names and addresses of three referees, must be received by FRIDAY, 30th September, 1960.

Car allowance in accordance with the National Joint Council Scale will be paid.

Council house will be made available if needed.

D. LLOYD HUGHES,
Clerk of the Council.

Town Hall,
Holyhead.

APPOINTMENTS VACANT

CIVIL SERVICE COMMISSION.

INLAND REVENUE VALUATION OFFICE.

Pensionable posts in offices in England and Wales and in Scotland for professionally qualified men and women at least 25 on 1st November, 1960. Some posts for valuation of minerals in England and Wales are in 2nd class; all other posts are in 3rd class.

Starting salary (men, London): 3rd class from £830 (25) to £1,205 (36 or over); scale maximum £1,300. 2nd class scale: £1,325-£1,835. Promotion prospects.

Write CIVIL SERVICE COMMISSION, Burlington Gardens, London, W.1, for Application Form, quoting 149-149/60.

Closing date: 18th OCTOBER, 1960.

COUNTY BOROUGH OF GRIMSBY.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

SENIOR ENGINEERING ASSISTANT.

APPLICATIONS are invited for the APPOINTMENT of a SENIOR ENGINEERING ASSISTANT on the permanent staff, Grade A.P.T. IV, commencing salary £1,065, rising to £1,220 per annum.

Experience in main drainage would be considered an advantage. The appointment will be subject to the Conditions of Service of the National Joint Council, terminable by one month's notice on either side, and to the provisions of the Local Government Superannuation Acts. The successful candidate will be required to pass a medical examination.

Housing accommodation for a married person will be available if required.

Applications, stating age, qualifications, present and past appointments, and details of experience, together with the names and addresses of two referees, must be delivered to the undersigned not later than First Post on MONDAY, the 19th September, 1960.

J. V. OLDFIELD, M.Inst.C.E.,

Borough Engineer and Surveyor.

Municipal Offices,
Town Hall Square,
Grimsby,
August, 1960.

COUNTY BOROUGH OF BOURNEMOUTH.

BOROUGH ENGINEER'S DEPARTMENT.

APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the ABOVE POST, in the first instance on the £500,000 scheme for the construction of Holdenhurst Sewage Disposal Works. Salary A.P.T. IV (£1,065-£1,220). Starting salary above minimum considered for suitable experience.

No application forms will be issued, but conditions of service and outline of above contract can be obtained from Borough Engineer.

Applications giving names of two referees, and stating age, qualifications and details of experience, to reach Borough Engineer, Town Hall, Bournemouth, by 1st OCTOBER, 1960.

A. LINDSAY CLEGG,

Town Clerk.

CITY OF CARLISLE WATERWORKS.

RIVER EDEN SCHEME—STAGE II.

APPOINTMENT OF CLERKS OF WORKS.

APPLICATIONS are invited from suitably experienced candidates for the POSTS OF CLERKS OF WORKS to supervise the laying of cast-iron mains and/or the construction of a reinforced concrete reservoir, under the direction of an Assistant Engineer. The appointments will be for a period of about 12 months.

Applications should reach the Council's Consulting Engineers, MESSRS. ROFE AND RAFFETY, 9 Brewer's Green, Buckingham Gate, London, S.W.1, not later than FRIDAY, 23rd September, 1960.

Appointments will be subject to one month's notice and such other conditions of service as are made known to the candidate appointed.

H. D. A. ROBERTSON,

Town Clerk.

CITY OF PLYMOUTH.

APPOINTMENTS: (1) Senior Engineer, Scale "B" (£1,315-£1,465).

(2) Senior Assistant Engineer, Grade A.P.T. V (£1,220-£1,375).

(3) Draughtsman/Surveyor, Misc. Grade V (£630-£715).

Applicants for (1) and (2) must be professionally qualified and have had a good experience in the design and construction of major roads and concrete bridges.

Applicants for (3) should be neat and quick Draughtsmen, with experience in carrying out surveys. Age limit for these appointments, 40 (or 45 if already serving with a Local Authority). The appointments are subject to medical examination, and successful applicants will be required to contribute to the Superannuation Fund.

Housing accommodation, if required, will be made available, and part of removal expenses refunded. Applications, on forms obtainable from me, are returnable by the 3rd OCTOBER, 1960.

J. ACKROYD,

City Engineer and Surveyor.

The Guildhall,
Plymouth.

FARNBOROUGH URBAN DISTRICT COUNCIL.

APPOINTMENT OF CLERK OF WORKS AND ASSISTANT BUILDING INSPECTOR.

APPLICATIONS are invited for the ABOVE APPOINTMENT in the Engineer and Surveyor's Department at a salary on Grade A.P.T. I (£610-£765) of the National Scales.

Candidates must have a thorough knowledge of road construction, both macadam and concrete roads, and also a knowledge of Building By-laws, building construction and drainage.

The appointment will be in accordance with the National Scheme of Conditions of Service, and terminable by one month's notice on either side.

Applications, stating age, qualifications, experience, and the names of two referees, must be received by the undersigned not later than 24th SEPTEMBER, 1960.

D. STUART JONES,

Clerk of the Council.

Town Hall,
Farnborough,
Hants.

APPOINTMENTS VACANT

CITY OF BRADFORD.

SENIOR QUANTITY SURVEYOR—POST NO. 170. A.P.T. IV (£1,065-£1,220).

APPLICATIONS are invited for the ABOVE SUPERANNUABLE POST in the City Engineer and Surveyor's Department.

Candidates should be A.R.I.C.S. and should be capable of undertaking all stages of work in the preparation of Bills of Quantities and other Contract documents, measurement of work, preparation of certificates for payment of interim and final accounts in connection with multi-storey flats, houses, shops, etc., on large housing estates.

Application Forms obtainable from the City Engineer and Surveyor, Town Hall, Bradford, 1, with three testimonials, must be received by the undersigned by 30th SEPTEMBER, 1960.

HENRY PATTEN,

Town Clerk.

Town Hall,
Bradford, 1.

CITY OF BRADFORD.

QUANTITY SURVEYORS.

APPLICATIONS are invited for the FOLLOWING SUPERANNUABLE APPOINTMENTS in the City Engineer and Surveyor's Department:

(a) Quantity Surveyor—Post 208. Special Grade (£785-£1,070), according to qualifications: Candidates should have passed the Final Examination of the appropriate professional body, and be capable of undertaking all stages of work in the preparation of bills of quantities and preparation and setting out of final accounts, site measurements, interim certificates and preliminary estimates in connection with multi-storey flats, houses, shops, etc., on large housing estates.

(b) Assistant Quantity Surveyors—Posts 155 and 163. A.P.T. I (£610-£765): Candidates should have passed the Intermediate Examination of the appropriate professional body, and should be capable of all stages of working-up, checking of accounts, and site measurement.

Application Forms obtainable from the City Engineer and Surveyor, Town Hall, Bradford, 1, with three testimonials, must be received by the undersigned by 30th SEPTEMBER, 1960.

HENRY PATTEN,

Town Clerk.

Town Hall,
Bradford, 1.

CITY OF BRADFORD.

FACTORIES ACT, 1937—SECTION 34.

INSPECTOR—POST 60, GRADE A.P.T. I (£610-£765).

APPLICATIONS are invited from suitably qualified persons for the ABOVE SUPERANNUABLE POST.

Duties involve inspections for means of escape in case of fire and the preparation of reports and plans. Candidates should have knowledge of building construction and be accustomed to dealing with building plans.

Application Forms obtainable from the City Engineer and Surveyor, Town Hall, Bradford, 1, with three testimonials, must be received by the undersigned by 30th SEPTEMBER, 1960.

HENRY PATTEN,

Town Clerk.

Town Hall,
Bradford, 1.

CARSHALTON URBAN DISTRICT COUNCIL.

ENGINEER AND SURVEYOR'S DEPARTMENT.

ASSISTANT ENGINEER. Commencing salary within Scale £610-£1,115, according to experience.

Qualifications: Final A.M.I.Mun.E., or equivalent. Successful candidate will be able to gain experience in a variety of engineering schemes of interest.

Housing accommodation would be considered.

5-day week.

Canvassing will disqualify.

Application Forms, obtainable from the undersigned, to be returned within 14 days from the date of the appearance of this advertisement.

C. H. DURRANT,

Clerk of the Council.

Council Offices,
The Grove,
Carshalton,
Surrey.

BOROUGH OF SOUTHALE.

SOUTHERN SOIL RELIEF SEWER.

APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited from experienced persons for the ABOVE APPOINTMENT, to supervise the construction of main drainage works in which the sewers will be laid in heading.

The contract will be under the direction of the Consulting Engineers, MESSRS. J. D. AND D. M. WATSON, M.M.I.C.E., of 67 Tufon Street, Westminster, S.W.1.

The salary will be £1,500 per annum. The appointment, which will be taken up about the end of November, is expected to last not less than 18 months, and will be terminable by two months' notice on either side.

Applications should be addressed to S. F. THORNE, A.M.I.C.E., M.I.Mun.E., Borough Engineer and Surveyor, Town Hall, Southall, Middlesex, and received not later than MONDAY, 26th September, 1960.

J. S. SYRETT,

Town Clerk.

7-9 South Road,
Southall, Middx.

September, 1960.

LEEDS REGIONAL HOSPITAL BOARD.

APPLICATIONS are invited for the FOLLOWING APPOINTMENT in connection with the construction of a new multi-storey reinforced concrete-framed General Hospital at Huddersfield (500 beds, approx. cost £3.2m.). The building work commenced in March this year, and it is anticipated that site works will continue until 1962/63:

(a) Assistant Clerk of Works (Mechanical and Electrical)—Salary Scale £800/£900 per annum.

(b) Assistant Clerk of Works (Building)—Salary Scale £600/£750 per annum plus payment for overtime.

Applications, stating age, qualifications, previous experience, together with names and addresses of two persons to whom reference may be made, to the SECRETARY, Park Parade, Harrogate, by not later than 30th SEPTEMBER, 1960.

APPOINTMENTS VACANT

URBAN DISTRICT OF SUTTON-IN-ASHFIELD.

ENGINEER AND SURVEYOR'S DEPARTMENT.

APPLICATIONS are invited from suitably qualified and experienced persons for the UNDERMENTIONED POSTS in the Engineer and Surveyor's Department:

(a) Senior Engineering Assistant—Salary according to Special Grade for Engineering Staffs.

(b) Junior Engineering Assistant—Salary Grade A.P.T. I.

The commencing salary for each post will be fixed according to the qualifications and experience of the successful applicant.

Applicants must possess the appropriate qualifications laid down in the National Scheme of Conditions of Service.

Assistance will be given in connection with the provision of housing accommodation, if required.

Applications, stating age, qualifications, present and past appointments, and full details of experience, together with the names and addresses of two referees, to be forwarded to the undersigned so as to be received not later than FRIDAY, the 30th September, 1960.

Canvassing, either directly or indirectly, will disqualify.

WALTER LAUGHTON,

Clerk of the Council.

Barclays Bank Chambers,
Low Street,
Sutton-in-Ashfield.

9th September, 1960.

CHORLEYWOOD URBAN DISTRICT COUNCIL.

CLERK OF WORKS.

APPLICATIONS are invited for the POSITION OF TEMPORARY CLERK OF WORKS.

Candidates should be experienced in the supervision of the construction of roads, sewers, footways, services, etc., and the setting-out and measurement of contract work.

The duration of the appointment will be approx. nine months, but this may be extended to two years as other schemes mature.

The salary payable will be within the range of £900-£1,000 per annum, according to experience.

Applications should be forwarded to the undersigned, with details of experience, and names and addresses of two (technical) referees, not later than 29th SEPTEMBER, 1960.

R. DARRAH,

Clerk of the Council.

Chorleywood House,
Chorleywood,
Herts.

15th September, 1960.

NEWTON ABBOT URBAN DISTRICT COUNCIL.

APPOINTMENT OF WORKS SUPERINTENDENT.

APPLICATIONS are invited for the ABOVE APPOINTMENT in the Engineer and Surveyor's Department at a salary in the A.P.T. Grade I (£610-£765 p.a.), but commencing salary will be commensurate with experience.

Candidates must have had experience with a Local Authority, including the following: Street cleaning, sewerage and sewage disposal works, highway maintenance and construction, housing repairs, street lighting, etc.

Housing accommodation will be available if necessary.

Candidates will be required to drive a van which is provided to help carry out the necessary duties. The appointment will be subject to the provision of the Local Government Superannuation Act, and the successful candidate will be required to pass a medical examination.

Applications, stating age and other particulars, qualifications (if any), experience and previous appointments, should be forwarded to the Engineer and Surveyor, 18 Devon Square, Newton Abbot, accompanied by not more than three recent testimonials, not later than 30th SEPTEMBER, 1960.

H. EVANS,

Clerk of the Council.

Town Hall,
Coteney Street,
Newton Abbot.

September, 1960.

CIVIL ENGINEERING ESTIMATOR, aged 25-30,

with adequate training and some experience of tendering for general civil works, is REQUIRED by well-established contractors with offices in North London. This is a permanent appointment, with good prospects, for a suitable applicant. Staff pension scheme in operation.—Write, giving age, salary requirements, and fullest details of experience, to Box V.2604, "The Contract Journal."

ENGINEER-ESTIMATOR REQUIRED for small but expanding civil engineering contractors in South-East. This appointment would mean that the applicant would be responsible only to the contracts manager, and is an excellent opportunity for a young, live man. Experience desirable in road and sewer construction; also in sewage disposal, etc.—Write, stating age, training and experience, to Box V.2618, "The Contract Journal."

CIVIL ENGINEERS

REQUIRED for technical sales, planning and supervision. Applicants, preferably aged 25 to 35, must be of good address, well-educated and have had site and drawing office experience. Positions call for a sound civil engineering background rather than highest technical qualifications. A working knowledge of soil mechanics would be advantageous. Positions are progressive, permanent and pensionable. Successful applicants may be based in Derby or London.—Reply, with full particulars, to

F.C. CONSTRUCTION CO., LTD.,

City Road, Derby.

INSPECTORS OF WORKS REQUIRED to supervise civil engineering construction work overseas. Experience in reinforced concrete and general civil engineering work. Applications required now.—Write, stating age and experience, to Box V.2616, "The Contract Journal."

OLD-ESTABLISHED company invite applications from CIVIL ENGINEER/AGENTS, aged about 30, for appointment to the staff of an expanding organization in South Lancashire/Cheshire. The successful applicants must be experienced in roads, drainage, sewage disposal, reinforced concrete works, etc., and have previously held a similar position with a reputable contractor. Excellent prospects are offered to keen, ambitious men willing to accept responsibility.—Write in confidence to Box V.2620, "The Contract Journal."

APPOINTMENTS VACANT

ESTIMATOR REQUIRED for civil engineering contractors' London office. Applicants should have been previously engaged in the preparation of tenders for earthworks, foundations, r.c. and marine construction, and a sound site experience of such works would be to advantage. The position is progressive and covered by a superannuation scheme. Applications invited in confidence (existing staff advised of vacancy). — Write Box V.2608, "The Contract Journal."

JUNIOR ESTIMATOR REQUIRED in civil engineering contractors' office in N.W. London. Applicants should have a background of quantity surveying and some site experience, or similar experience in an estimator's office. Progressive, pensionable, giving time.—Apply **RUDDOCK AND MEIGHAN LTD.**, Burford House, Harrow View, Wealdstone, Middlesex. experience, to Box V.2613, "The Contract Journal."

NATIONAL CONTRACTORS

With headquarters in London, wish to appoint **DESIGN AND PLANNING ENGINEER**. This is a senior head office appointment, and the successful applicant will be responsible for design and planning services throughout the company, both for current contracts and projected work. He will be expected to recruit and organize a team of designers and draughtsmen to cope with an expanding volume of work. Essential requirements include extensive experience of design of major temporary works and formwork, sound knowledge of planning and programming, a professional qualification and some practical site experience. Attractive salary with usual benefits and excellent prospects await the right man. Write, in complete confidence, to:

BOX C1783, LPE.
Romano House, 359/401 Strand, W.C.2.

MOWLEM REQUIRE A DRAUGHTSMAN/DESIGNER at their head office. The duties will comprise the design and detailing of mechanical and structural work, mainly in connection with civil engineering construction plant. — Applicants should have technical training to H.N.C. (Mechanical) standard, and should write, giving age, experience, and salary required, to **JOHN MOWLEM AND CO. LTD.**, Plant Department, 91 Ebury Bridge Road, S.W.1.

SITE AGENT, preferably qualified, REQUIRED for bridge reconstruction in West London, with permanent position. Applicant must give details of qualifications, experience, and salary required, to Box V.2591, "The Contract Journal."

WORKS MANAGER for civil engineering and industrial building work in South of England. Applicants should be capable of site control of work up to £1m. Pension and bonus schemes in operation. Write full particulars to Box V.2593, "The Contract Journal."

SENIOR EXECUTIVE REQUIRED for contractors' mechanical plant company in North London. Must have first-class knowledge of the trade, be competent to give technical advice to customers when necessary, and be able to negotiate at top level for sales and hire of contractors' plant and machinery. Ability to introduce new spheres of activity into existing business would be an advantage. Applications will be treated in the strictest confidence. Write in first instance, giving details of past experience, age, etc., and salary expected, to Box V.2639, "The Contract Journal."

SIR LINDSAY PARKINSON AND CO., LTD.

REQUIRE for their head office in London the following staff:

- (1) **SENIOR CIVIL ENGINEER**
Applicants must be experienced contracts engineers, preferably qualified, who have been employed in a senior capacity on site and with good knowledge of contract planning and of the design and construction of cofferdams, stagings, formwork, etc. Age 32-45.
- (2) **CIVIL ENGINEERS** (2)
Requirements similar to (1), but age 25-35.
- (3) **CIVIL ENGINEERING DRAUGHTSMEN**
Quick, accurate draughtsmen with minimum of five years' experience in contractors' or consulting engineers' drawing office, capable of working with minimum supervision.—Excellent salary and prospects to suitable applicants, who should apply, in writing, to:

C.E.D.,
SIR LINDSAY PARKINSON AND CO., LTD.,
6 Lambeth Road, London, S.E.1.

GANGERS WANTED for contracts in South Lancashire/Cheshire. Own following preferred. Top rates and pension offered to first-class men; others need apply. — **JAMES BENNETT (CONTRACTORS), LTD.**, Helsby Street, Warrington, Tel. 35451.

AGENT REQUIRED for very large contract in the London area. Applicants must have considerable experience in major works involving extensive reinforced concrete construction. Substantial salary is offered, together with bonus. Applicants must have ability to ensure successful production, and only those with experience in supervising large contracts of this type will be considered.—Apply, in writing, stating age, details of experience, etc., **M. J. GLEESON (CONTRACTORS), LTD.**, Harewood House, London Road, North Cheam, Surrey.

AGENT REQUIRED for large outfall sewerage contract near Chester-le-Street, Co. Durham. Applicant must be fully experienced with this type of work and must be able to produce results.—Reply, giving particulars in similar type of works carried out, together with salary required, to **DEREK CROUCH (CONTRACTORS), LTD.**, Station Road, Birtley, Co. Durham.

FIRM of national building contractors REQUIRE **FIRST-CLASS REINFORCED CONCRETE GENERAL FOREMEN** for work in Northern Area. Permanent and pensionable positions for right applicants.—Write to Box L.398, "The Contract Journal."

TARMACADAM surfacing contractors operating in London and Home Counties will REQUIRE, during the coming months, a **FIRST-CLASS CONTRACTS SUPERVISOR** resident in Essex to deal with contracts in their Eastern area. Duties will consist of initial site inspections and reports for estimating purposes, and complete supervision of contracts, including measuring, etc., up to and including final invoice stage. Car provided, and company superannuation scheme in operation. Commencing salary £16 per week.—Write Box V.2662, "The Contract Journal."

AGENTS AND FOREMEN REQUIRED for housing contracts in Swansea area. Permanent position for suitable applicants.—Please reply, stating age, previous experience, and salary required, to Box V.2659, "The Contract Journal."

APPOINTMENTS VACANT

CIVIL ENGINEERS REQUIRED for steelwork construction contracts in the North-East. Fully experienced and accurate in setting-out, able to work on own initiative and measure-up as work proceeds. Good prospects, with salary according to ability. Write Box V.2656, "The Contract Journal."

OLD-ESTABLISHED Engineers manufacturing road construction machinery wish to appoint **SALES REPRESENTATIVE** with knowledge of such equipment. Good prospects for right man, and pension scheme.—Write full details, please, to Sales Director, Box V.2511, "The Contract Journal."

COSTING AND BONUS SURVEYOR REQUIRED for large-diameter water main contract, Chester area. Contract period 18 months, with probable permanency if satisfactory. Good salary and bonus paid to efficient man well experienced in this class of work, or equal.—Apply **R. G. HORTON, LTD.**, Contractors, Brierley Hill, Staffs.

SITE ENGINEER REQUIRED for setting-out and levelling and keeping records: large-diameter water main contract, Chester area. Good salary and bonus will be paid on probationary period.—Apply **R. G. HORTON, LTD.**, Contractors, Brierley Hill, Staffs.

WANTED

D7 and D8 Caterpillar DRIVERS, with experience in scraper work.—Apply:

SOUTH OF IRELAND PUBLIC WORKS AND PLANT HIRE CO., LTD.,
Castletroy, Limerick.

EXPERIENCED AGENTS AND ENGINEERS REQUIRED by civil engineering and building contractors. Permanent, progressive position; pensionable after probationary period.—**THOMAS VALE AND SONS, LTD.**, Stourport-on-Severn. Tel.: Stourport 2462.

EXPERIENCED ESTIMATOR, preferably with site experience, REQUIRED by civil engineering and building contractors. Permanent, progressive position; pensionable after probationary period.—**THOMAS VALE AND SONS, LTD.**, Stourport-on-Severn. Tel.: Stourport 2462.

JUNIOR CIVIL ENGINEERS REQUIRED for bridge construction and dual carriageway project in the Bristol area. Efficient knowledge with survey instruments necessary.—Apply: stating age, experience, qualifications, etc., to: **SYDNEY GREEN AND SONS (CONTRACTORS), LTD.**, Highwood Lane, Cribbs Causeway, Bristol. This project will provide excellent opportunities in modern motorway construction for the young engineer.

CONTRACTORS' AGENTS REQUIRED to supervise mobile labour gangs on long-term contracts in the London area. Applicants must be familiar with the W.R.A. and experienced in handling and organising labour.—Write, giving details of age, experience, etc., which will be treated in the strictest confidence, to **THE EAGRE CONSTRUCTION CO., LTD.**, East Common Lane, Scunthorpe, Lincs.

TIMEKEEPER/WAGES CLERK REQUIRED for long-term contract in the London area. Applicants must be well versed in W.R.A. and P.A.Y.E. procedure.—Write, giving details of age, experience, etc., which will be treated in the strictest confidence, to **THE EAGRE CONSTRUCTION CO., LTD.**, East Common Lane, Scunthorpe, Lincs.

ASSISTANT CIVIL ENGINEERING ESTIMATOR

REQUIRED for a national company. This is an excellent opportunity for a capable man with site experience to advance in an expanding organisation. Write, giving full details, to:

JAMES MILLER AND PARTNERS, LTD.,
Pump Lane, Hayes, Middlesex.

SITE ENGINEERS. — If you are ambitious and anxious for rapid promotion in position with responsibility and salary, and are young with a few years' setting-out experience on contracts, we have several positions open and invite you to get in touch with us to discuss details, terms and conditions. — **WILSON LOVATT AND SONS, LTD.**, Clarence Street, Wolverhampton.

CIVIL ENGINEERING contractors expanding their organisation wish to appoint a **SENIOR SITE ENGINEER** for roadworks and main drainage contracts in the Oxfordshire area. Salary range of £1,000/£1,250 p.a. Permanent and progressive post, with superannuation scheme.—Write in confidence, stating age, full details of experience, and past employers, etc., to Box V.2652, "The Contract Journal."

CIVIL ENGINEERING ESTIMATOR REQUIRED. The position offers scope for a person with initiative and preparedness to accept responsibility for pricing on a truly competitive basis. There is a contributory pension scheme in force. The location is Sheffield.—Apply in strict confidence to the Chief Engineer, **M.S.M. GROUP OF COMPANIES**, Knowle House, Norfolk Park Road, Sheffield, 2.

CARPENTERS REQUIRED immediately for bridge contract in Worcester. Production bonus and subsistence.—Apply on site or write to General Foreman, **LOMOUNT CONSTRUCTION, LTD.**, adjoining The Rectory, Princesland, near Hadzor, Droitwich. Telephone: Droitwich 2004.

CONSULTING CIVIL ENGINEERS

Have vacancies for **ENGINEERING ASSISTANTS** to assist in the design of various public health engineering works. The positions offer a wide opportunity of obtaining experience in various aspects of the profession, and at a quiet, long period. Assistants are entitled to join the non-contributory pension scheme operated by the firm.—Applicants should write, giving details of their qualifications and experience, to:

JOHN TAYLOR AND SONS,
Artillery House, Artillery Row, London, S.W.1.

ASSISTANT ENGINEER REQUIRED by major civil engineering and building contractors operating on a national scale on nuclear, steam and hydro-electric projects. This permanent appointment is initially for a major civil engineering contract, with advancement and at a quiet, long period. Good salary and conditions, and entry into superannuation scheme after 12 months' service.—Apply to **THE MITCHELL CONSTRUCTION CO., LTD.**, Wharf Works, Peterborough.

APPOINTMENTS VACANT

SENIOR AGENT REQUIRED for long-term building contract, Home Counties. Good salary, bonus and drawings and office routine. Good salary offered to right man, with pension scheme and other amenities.—Full particulars, in confidence, to General Manager, **CAWOOD WHARTON AND CO., LTD.**, Construction Department, Southampton, Hants.

SITE SAFETY OFFICER REQUIRED on Padham "B" power station, now under construction. Applicants should currently hold a similar position. Application to be made in writing, stating qualifications, age and salary required, direct to the Agent, **M. J. GLEESON (CONTRACTORS), LTD.**, Padham "B" Power Station, Padham, near Burnley, Lancs.

ASPHALT and tarmacadam surfacing contractors **REQUIRE FIRST-CLASS FOREMEN, MATES, RAKE-HANDS AND ROLLER DRIVERS** for work in the London and Home Counties area, and the Midlands area.—Write to Box V.2663, "The Contract Journal."

RAPIDLY expanding firm of structural engineers supplying components for large prefabricated buildings **REQUIRES TWO CONTRACT OFFICERS**. These are new positions, and persons appointed will be responsible for the company's activities in the area allocated to them. They will be based in the Midlands and considerable travelling will be involved. Applications are invited from persons aged 35-40 who have had an all-round experience in the building industry and who are used to negotiating with senior architects and Government Departments.—Write full details of previous experience, salaries earned, etc., to Box V.2658, "The Contract Journal."

CONTRACTS MANAGER (BUILDING)

For a leading building and civil engineering company with an expanding organisation. He will be responsible to the director in charge of construction. His duties will be mainly concerned with contract management, and he will control assistant contracts managers who are responsible for general building and local authority housing contracts of several million pounds in value. This is a very important post and holds great opportunities for the advancement of the successful candidate, who must have several years' experience in contract management and be of proved ability. The position offers a high salary, superannuation, profit-sharing scheme, top-hat pension and a car/bike. Particulars of particular interest should be sent, in confidence, to:

A. C. Bryant, Managing Director,
C. BRYANT AND SON, LTD.,
5 Small Heath, Birmingham, 10.

SITE ENGINEERS REQUIRED for building contracts in London area. Must have considerable experience in multi-storey concrete-framed buildings. Good salary for men with initiative.—Apply in writing, stating age and experience, to **M. J. GLEESON (CONTRACTORS), LTD.**, Harewood House, London Road, North Cheam, Surrey.

CASHIERS REQUIRED for site office work in the North-East. Applicants should be fully experienced in civil engineering/building. Permanent position with good conditions for suitable man.—Write Box V.2657, "The Contract Journal."

SENIOR ESTIMATOR REQUIRED by firm of civil engineering contractors. Head office appointment. Reading area. Permanent and progressive post, with superannuation scheme in operation.—Write in confidence, stating age, full details of experience with past employers, and salary required, to Box V.2653, "The Contract Journal."

BUILDING ESTIMATOR. — If you are young and have H.N.C. or L.I.O.B. in building and some experience in building-up prices for estimating, we have a progressive vacancy and offer a good salary to a suitable applicant.—Please get in touch with **WILSON LOVATT AND SONS, LTD.**, Clarence Street, Wolverhampton.

CIVIL ENGINEERING AGENTS

Trained Civil Engineers who have been in sole charge of contracts and who are seeking promotion into Contract Management and who are prepared to prove their ability in handling competitive contracts involving R.C. construction, are invited to send details of age and experience. Quote Ref. SC.96/2.

SITE CIVIL ENGINEERS

Civil Engineers who have completed at least three years in reinforced concrete construction and who are prepared to prove their ability on competitive contracts are invited to send details of age and experience. Quote Ref. SC.97/2.

TRADE FOREMEN

Experienced Foremen who are seeking promotion to a permanent pensionable post as Junior General Foreman and who are prepared to show their ability to turn out R.C. work of good quality, on time, at a competitive price, while on probation, are invited to send details of age and experience. Quote Ref. SC.98/2.

Applications, in confidence, to:

Contract Labour Department:
SIMON-CARVES, LTD.,
Cheadle Heath, Stockport, Cheshire.

CHIEF BUYER. — Opportunity for first-class men to join progressive organisation. Must have considerable experience as Buyer for building and civil engineering contractors. Knowledge of B.O.Q. and drawings and office routine. Good salary offered to right man, with pension scheme and other amenities.—Full particulars, in confidence, to General Manager, **CAWOOD WHARTON AND CO., LTD.**, Construction Department, Southampton, Hants.

SENIOR ENGINEER/SUB-AGENT REQUIRED for power station contract by major firm of civil engineering and building contractors. This is a permanent appointment, with prospects of rapid promotion. Agent, and has ample scope for further advancement thereafter, for the right applicant. Write Box V.2671, "The Contract Journal."

ASSISTANT OUTSIDE ENGINEERS WANTED, age 23-32. Civil or constructional engineering experience essential. Technical qualifications desirable. Good prospects. Permanent posts. Salary according to experience, age and qualifications. Generous outliving allowance and leave. Pension, insurance and bonus schemes.—Apply in writing, giving details of education, etc., to the Personnel Officer, **WOODALL-DUCKHAM CONSTRUCTION CO., LTD.**, 63/77 Brompton Road, London, S.W.3.

ASSISTANT ENGINEERS. — **SIR LINDSAY PARKINSON AND CO., LTD.**, have vacancies for several Assistant Engineers for setting-out and concrete control, etc., in the London area. Permanent appointments, with considerable scope for advancement. Reply in writing, in confidence, to Civil Engineering Director, 6 Lambeth Road, London, S.E.1.

APPOINTMENTS VACANT

KEEN ESTIMATOR/SURVEYOR REQUIRED for sportsground and hard courts. Previous experience in similar capacity essential. Able to take levels, prepare plans and estimate competitively, particularly on bulk excavation. Salary according to experience. Apply, with full details of previous experience, age, etc., to **GRASSPHALTE, LTD.**, High Street, Hampton Hill, Middlesex.

AGENTS (Building), Midlands area, for a leading building and civil engineering company with an expanding organisation. Must have carried out large-scale contracts, including concrete-framed multi-storey structures. Able to adhere to progress schedules and be conversant with planning procedure. High salary; superannuation and profit-sharing scheme. — Brief particulars to be sent, in confidence, to J. Wright, Director, **C. BRYANT AND SON, LTD.**, Small Heath, Birmingham, 10.

JOHN LAING AND SON, LTD.

REQUIRE ASSISTANT BUYERS at their head and regional offices. Applicants should have had some experience of buying or have construction qualifications and must be able to take off quantities. Applications welcome from men studying for H.N.C., L.I.O.B. or A.I.Q.S., or those who have had construction qualifications. Prospects within the organisation, including pension scheme and other progressive benefits. — Applications, in writing, to:

Personnel Manager (A.B.17),
JOHN LAING AND SON, LTD.,
London, N.W.7.

CIVIL ENGINEERS REQUIRED immediately for contract site work and design, etc., in Bedfordshire and Essex, by London firm of civil engineering contractors. Applicants should be aged 25/35, with B.Sc., or equivalent. Other requirements are: A sound knowledge of the industry, enthusiasm, and a readiness to take on responsibility. There are excellent opportunities for advancement, and there is a pension scheme operating within the company.

Write Box V.2683, "The Contract Journal."

YOUNG GENERAL FOREMEN with exceptional organising ability and drive are REQUIRED by very active contracting firm. Only fully mobile men, under 30, who are prepared to work very long hours and week-ends will be considered. After period of training, men will be required to run sub-contracts on very large construction sites. Applicants must have the ability to select and look after first-class labour, deal with main contractor's requirements, supervise plant maintenance, and plan and organise their work to the last detail. Minimum starting salary will be £2,000 p.a. plus bonus, and interviews will be in London. — Please write, giving full details of experience, etc., to Box V.2686, "The Contract Journal."

MANAGER

REQUIRED for contractors' plant hire company. The directors of (small plant hire company) a subsidiary of a large building and development group) in Southern England REQUIRE a first-class practical MANAGER, capable (1) of improving the efficiency of the operations of the existing plant fleet; and (2) of extending the general hire side of the business and increasing turnover and profits. The successful applicant must be experienced in the areas of plant, transport management—hiring, servicing, general control and administration. The post offers excellent scope for advancement to a man with the necessary vision and energy to produce real results and profit. A high salary is offered, plus bonus or commission on profits. Car will be provided and non-contributory pension scheme is in operation. — Write confidentially in first instance to:

BOX V.2673, "THE CONTRACT JOURNAL."

CLERICAL ASSISTANT (Male), aged 18-22, having G.C.E. "O" Level in English and mathematics. Previous experience in civil engineering contractor's office desirable but not essential. Salary according to age and experience. Five-day week; three weeks annual holiday; canteen facilities. — Applications, giving full particulars of age, qualifications and experience, should be addressed to the Secretary, **HOLLOWAY BROS. (LONDON), LTD.**, 157 Millbank, London, S.W.1.

A MAJOR civil engineering company have a vacancy for a **DEPUTY MANAGER** to take charge of their North London works. Applicants should preferably have had previous experience with civil engineering contractors. First-class administrative and organising ability essential. Superannuation scheme. Salary according to experience. — Write Box V.2672, "The Contract Journal."

WORKS MANAGER REQUIRED to take complete charge of new concrete factory shortly to be opened by **ANGLIAN BUILDING PRODUCTS, LTD.**, Lenwade, Norwich. Only first-class and experienced men need apply. The position offers great scope and remuneration commensurate with responsibility and experience. — Apply in first instance, in writing, giving full details, to Managing Director.

J. I. CASE COMPANY, LTD.

REQUIRE for their Leeds depot a **SERVICE MANAGER**. He will be responsible to the Service Manager in London for servicing, repairs and parts in Northern England, and will recruit his own staff. It is proposed to delegate maximum responsibility and a first-class organiser is therefore sought, fully experienced for this work. — Reply to:

Home Sales Director,
J. I. CASE COMPANY, LTD.,
Elrige, Mill Road, West Drayton, Middlesex.

JUNIOR ENGINEERS REQUIRED for tunnelling contracts in London area. — Apply, stating age and brief particulars, to **KINNEAR MOODIE AND CO., LTD.**, 299 Hither Green Lane, London, S.E.13.

WORK STUDY ENGINEER REQUIRED by a leading manufacturer and contractor of the building industry near London. The position offers excellent opportunities to a Work Study Engineer between the ages of 25/35 who has had experience in building and civil engineering, and is prepared to travel within the United Kingdom. Initial salary will be in four figures, exact amount depending on experience and qualifications. Full details of experience and career to date, in chronological order, should be submitted. The successful candidate, after training to the company's requirements, will be responsible for the application of improved techniques in the contracting division. — Write Box V.2697, "The Contract Journal."

APPOINTMENTS VACANT

DUE to the continued expansion of their civil engineering department, **SIR LINDSAY PARKINSON AND CO., LTD.**, have a vacancy for a **SENIOR ESTIMATOR**. Applicants, preferably qualified Engineers, should have had considerable site experience and be capable of preparing tenders for civil engineering projects of at least £1m. in value. Permanent and pensionable appointment. — Write, in confidence, full details of experience and qualifications, to Civil Engineering Director, 6 Lambeth Road, London, S.E.1.

CIVIL ENGINEERING contractors operating in South-Eastern Counties REQUIRE First-class General Foreman to supervise contracts up to £150,000. Excellent opportunity for advancement with expanding company. — Write full details to Box V.2701, "The Contract Journal."

CIVIL ENGINEERING SUB-AGENTS

RICHARD COSTAIN, LTD., have vacancies in Nigeria for **SUB-AGENTS** to be responsible to the Agent on a large civil engineering marine project covering day and night shifts. Candidates, aged 30-40, should preferably be qualified, and must have sound experience on large civil engineering contracts previous marine experience desirable. Salary £2,100 per annum, with furnished accommodation provided free. Kit allowance £60. Tours of 18 months, each followed by three months' paid leave in U.K. — Please write to:

Senior Overseas Personnel Officer,
RICHARD COSTAIN, LTD.,
111 Westminster Bridge Road, London, S.E.1.

PAVOR CONSTRUCTION CO., LTD., invite applications for the following experienced civil engineering staff for work in the Yorkshire area: **AGENTS**—preferably qualified and with extensive experience in the industry; **SITE ENGINEERS**—to train as Sub-Agents and Agents. Preferably with at least five years' site experience on major projects; **GENERAL FOREMEN**—a number of General Foremen are required for contracts varying from major roadworks, deep sewers and bridgeworks; **SUPERVISORS**—for surfacing department requires a number of Supervisors experienced in road surfacing. Applicants must be capable of ordering their own materials via head office, planning continuity of work, and be able to measure and agree quantities with our clients. These are intended to be permanent positions and carry with them an immediate entry into a first-class superannuation scheme. Excellent prospects, together with generous salaries and other financial benefits. Apply in first instance in writing to **Pavor Construction Co., Ltd.**, Saltair Road, Shipley, Yorkshire.

GENERAL FOREMAN REQUIRED by international company for contract involving large-scale excavation and timbering, and only in writing to **THYSSEN (Ref. C.G.P.)**, Wessleigh House, 42 Coombe Road, New Malden, Surrey.

SOUTH-WEST ENGLAND

National contractors invite applications from experienced men for the following positions for their local office:—

SUPERVISORS

Preferably engineer-trained, with good experience in the control of a number of medium- and large-sized reinforced concrete contracts essential, together with knowledge of modern methods of construction and planning.

GENERAL FOREMEN

Preferably carpenter-trained and only in writing in charge of reinforced concrete construction.

SENIOR PLANNING ENGINEERS

For pre-maturing planning, detailed programming of structural and building work, and in writing in ordination of site planning engineers: all trades, with specialised knowledge of reinforced concrete work. The appointments will be to the permanent staff, and offer interesting and varied work, with excellent opportunities for increased responsibility and/or advancement to more senior positions, with appropriate remuneration. — Please send full details, in confidence, to:

BOX SW.3755, A.K. ADVERTISING,
212A Shaftesbury Avenue, W.C.2.

ROAD SURFACING contractors REQUIRE **ESTIMATOR/CLERK** for their Midlands office. — Apply in writing, age, experience, and salary required, to **WILLIAM PRESTWICK AND SONS, LTD.**, Tudor House, Bridge Street, Walsall.

QUANTITY SURVEYOR. — A Quantity Surveyor is REQUIRED to work with a team of civil engineers and architects on large projects. The applicant should be suitably qualified and have a working knowledge of contract procedure as well as varied experience on large civil engineering and building projects. Knowledge of estimating and cost analysis is also necessary. Duties will include taking-off, abstracting and billing quantities, in accordance with The Standard Methods of Measurement. Also measuring contract work for final payment and compiling statistics and data for construction cost research. Candidates are invited to apply, giving full details of age, experience, qualifications, and salary, to Box V.2705, "The Contract Journal."

SIMON-CARVES, LTD.

REQUIRE a **TAKER-OFF**. Applicants must have at least two years' taking-off experience. Age 25 and over. This post is permanent and pensionable. The starting salary depends on experience and qualifications and will be in the range of £850-£1,000 p.a. Good working conditions. Salary to be discussed. 5 weeks' annual holiday. — Send brief relevant details, quoting Ref. UM.52, to:

Staff and Training Division,
SIMON-CARVES, LTD.,
Cheshire Heath, Stockport, Cheshire.

CONTRACTS MANAGER REQUIRED by leading specialist reinforced concrete engineers and contractors. Responsible men with preferably five years' similar experience. All-round knowledge of modern means and methods. Salary to commence £1,500 per annum, rising in five years to £2,000 per annum. — Write Box V.2702, "The Contract Journal."

SUPERVISORS (Reinforced Concrete). — Due to increased two additional first-class Supervisors are REQUIRED by well-known concrete specialists. Experienced men, preferably used to handling long-term contracts, but top Foremen with good all-round experience considered. Good salary and conditions. — Write Box V.2703, "The Contract Journal."

APPOINTMENTS VACANT

DICK HAMPTON REQUIRES **YOUNG ENGINEERS** to measure earthwork quantities for cost estimation, and estimating. Permanent future in expanding, successful organisation. — **DICK HAMPTON, LTD.**, Broadview Farm, Blacknest, Alton, Hants. Tel.: Bentley 2241-2.

BUILDING AGENTS. — **JOHN MOWLEM AND CO., LTD.**, REQUIRE experienced men to take charge and be responsible for large building contract. Apply in writing, giving full particulars of age and experience, to the Personnel Officer, John Mowlem and Co., Ltd., 91 Ebury Bridge Road, London, S.W.1.

CONTRACT MANAGER. — A Contract Manager with a background of experience in industrial building and civil engineering is REQUIRED for a position with British contractors overseas. The successful applicant must have previous foreign experience and will preferably be qualified. A degree will be an advantage. He should be aged 35-45 and should already have been in charge of the turnover of at least half a million pounds per annum. A very good salary will be offered, together with married accommodation, car, and other benefits. — Write, with full details, to Box V.2704, "The Contract Journal."

QUALIFIED STRUCTURAL ENGINEERS, aged 25-33, are invited to apply for a number of progressive appointments in a Consulting Engineer's office in Westminster. Applicants should be expeditious designers in reinforced concrete and able to carry through projects from scheme stage to final completion, including site supervision. They should also be conversant with L.C.C. requirements and have had experience of pre-stressing and concrete construction. — Apply, giving full particulars, to A. E. BEER, 96 St. George's Square, S.W.1.

SENIOR and **JUNIOR SITE ENGINEERS** and **QUANTITY SURVEYORS** ARE REQUIRED for civil engineering and building contracts in England and Wales. These are permanent appointments, with good prospects. Bonus and superannuation schemes in operation. — Applications, which will be dealt with in strict confidence, must give details of age, experience, qualifications, and locations. — All applications should be addressed to Personnel Officer, **TARMAC CIVIL ENGINEERING, LTD.**, Ettingshall, Wolverhampton.

WANTED by West London contractor, a First-class **BUILDING TECHNICIAN**. Good prospects and salary for right man. — Write Box V.2710, "The Contract Journal."

CIVIL ENGINEER REQUIRED initially for work at head office and subsequently in senior site position on major contracts in U.K. Considerable experience of contracting essential. Attractive salary and pension. — Apply, with full details, to **HUMPHREYS, LTD.**, 199 Knightsbridge, S.W.7.

SUB-AGENTS and **ENGINEERS** are invited to apply for vacancies in the civil engineering department. The successful applicants will be required initially for work on contracts in Home Counties and West Country. Men with contractors' experience preferred, but each case will be considered on its merits. Attractive salaries and conditions. — Apply Personnel Dept., **HUMPHREYS, LTD.**, 199 Knightsbridge, S.W.7.

For Advertisements received too late for classification see page 1289

APPOINTMENTS WANTED

CIVIL ENGINEER, 52, qualified, REQUIRES **APPOINTMENT** as **DIRECTOR / GENERAL MANAGER**. Wide and varied association with the industry. Good commercial background. — Write Box W.2641, "The Contract Journal."

FOREMAN-FITTER, 20 years' depot and site experience, SEEKS POST with reputable company, any area. Available now. — Write Box W.2700, "The Contract Journal."

AUSTRALIA. — Qualified **CIVIL ENGINEER**, 37, with extensive construction and tendering experience, SEEKS a **SENIOR APPOINTMENT**, preferably Sydney area. Would consider post in allied industries if suitable. Salary level £A3,500. — Write Box W.2707, "The Contract Journal."

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CIVIL ENGINEERING CONTRACTORS' AGENT, 34 years' experience, REQUIRES POSITION to settle down, preferably with medium-sized firm. All details of experience and references available on application. — Write Box W.2725, "The Contract Journal."

WORK REQUIRED

SITE CLEARANCE, BULK EXCAVATION. **JANES AND CO., LTD.**, Trading Estate, Slough. Telephone: Slough 20351—Ext. 4.

SAM BOOTH, LTD., Perrymount Chambers, 1126 and 1258, SUB-CONTRACT or HIRE: D9s, with Bulldozer and Caterpillar 463 Scrapers.

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UPROOTING. — TREES, STUMPS, HEDGES, etc. We have the most complete and all modern equipment. — **T. GRAVESON, LTD.**, Warton, Carnforth, Lancs. Telephone: Carnforth 381 and 382.

BULK EXCAVATIONS, any quantity quoted for. Own plant and lorries. — **COFF AND SON (EXCAVATIONS), LTD.**, Buckhurst Hill, Cheshire, Ascot, Berks. Ascot 1026/7/8.

BULK EXCAVATION WANTED. — We have our own staff of qualified Civil Engineers, and have the following machines ready for hire: D9s, D8s, D4s, with Dozers, Scrapers and Rotters. Also Ruston Excavators with all equipments, and a fleet of new Tipping Lorries. No job is too small or too difficult. — **PLANT HIRE AND CONTRACTORS (CHELTENHAM), LTD.**, Southam Court, 98 Prestbury Road, Cheltenham, Glos. Tel. 52021/56419/56473.

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BULK EXCAVATIONS and SITE WORKS undertaken. DIRECT or on SUB-CONTRACT basis. Quotations given for large or small contracts anywhere.—**S. AND L. BULL BROS., LTD.**, 126A High Street, Winchester. Telephone: Winchester 2264.

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EARTHMOVING in south-west carried out by modern fleet of machines—hire or contract. Traxcavators, motor scrapers, bulldozers, excavators and mobile cranes.—**GRANGE PLANT LTD**, Honiton, Devon. Telephone: Broadhembury 330-355.

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LAND REQUIRED. Greater London and Home Counties area, approx. 2 to 6 acres, suitable as a plant depot, with or without existing buildings, or willing to PURCHASE existing PLANT HIRE COMPANY with suitable premises.—Please furnish details to Box X.2718, "The Contract Journal."

DIRECTORSHIP

EXPANDING civil engineering company offers DIRECTORSHIP. Applicant must be fully qualified Civil Engineer/Estimator or Agent with contracting experience and capable of contract planning, execution and measurement. £3,000 investment required. Salary to be negotiated.—Write, giving age, qualifications, experience and positions held, to Box X.2716, "The Contract Journal."

BUSINESSES—SALE OR WANTED

FOR SALE, SHARE CAPITAL of sand and gravel company (going concern) in Scarborough area. Write Box X.2676, "The Contract Journal."

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Full particulars and Form of Tender may be obtained from the Land Commissioner, MINISTRY OF AGRICULTURE, FISHERIES AND FOOD, Beches Road, Chelmsford, Essex. Closing date for Tenders, 10th OCTOBER, 1960.

GENERAL POST OFFICE.

The POSTMASTER-GENERAL offers for SALE 2,335 unused Crested Stouts TELEGRAPH POLES, ranging from 28ft. to 36ft. in length.

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Applications for Forms of Tender should be made to Director of Contracts, POST OFFICE CONTRACTS DEPARTMENT (Disposals), Telephone House, Temple Avenue, London, E.C.4.

CORNWALL COUNTY COUNCIL.

HIGHWAYS DEPARTMENT.

SALE OF SECOND-HAND PLANT.

The County Council offer the FOLLOWING for SALE:

Three 3-ton Tipping Lorries.
 10/7 Concrete Mixer.
 20cwt. Footpath Tandem Roller.
 Quarry Crushing Plant—Steel Bins, Two Diesel Oil Engines, and various odd items.

Further particulars may be obtained on request, in writing, to the County Surveyor, County Hall, Truro, by whom Tenders must be received not later than 9 a.m. on FRIDAY, the 7th October, 1960. The County Council do not bind themselves to accept the highest or any Tender.

E. VERGER,
 Clerk of the County Council.

County Hall,
 Truro,
 7th September, 1960.

NORTH LEVEL FOURTH DISTRICT DRAINAGE BOARD.

10RB DIESEL DRAGLINE, NO. 13770.

The Board invites TENDERS for the ABOVE MACHINE, complete with Accessories, including a practically new AL Type 10 cu. ft. Bucket. The dragline was supplied new to the Board in April, 1951, since which time it has been engaged only on ten drain work. It can be inspected at work at Guylrhin, near Wisbech, by appointment with the Board's Officer, Mr. H. Rowell, Leverington Common, Wisbech (Tel.: Wisbech St. Mary 207).

Tenders, in a plain sealed envelope, endorsed "Dragline Tender", to be addressed to the undersigned and to be received not later than First Post on SATURDAY, the 1st October, 1960.

The Board does not bind itself to accept the highest or any Tender.

EDWARD TAWN,
 Clerk of the Board.

13 South Brink,
 Wisbech,
 14th September, 1960.

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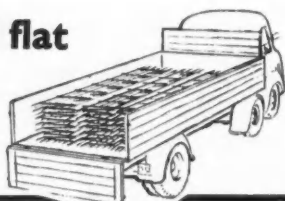
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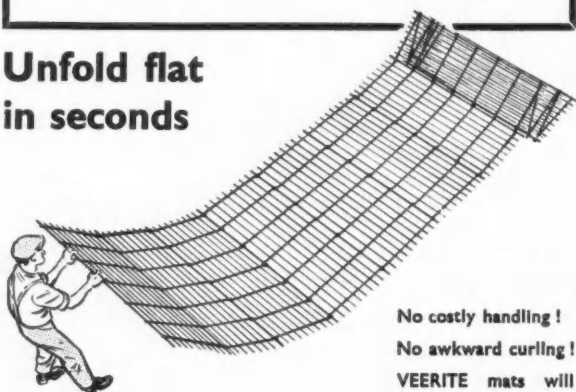
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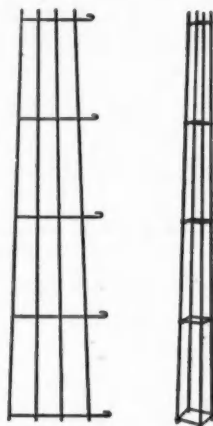
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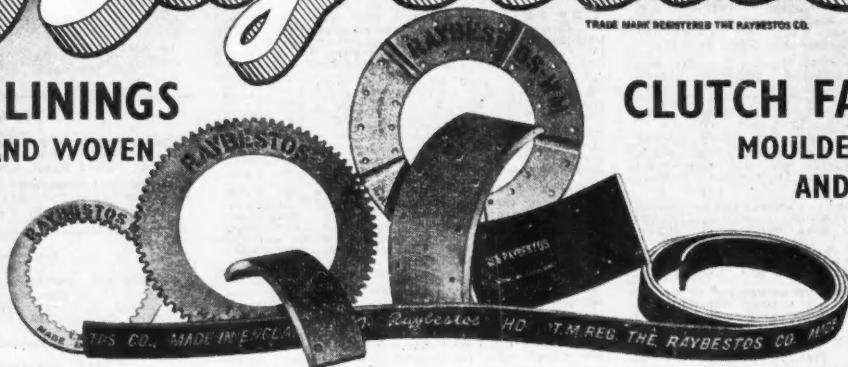
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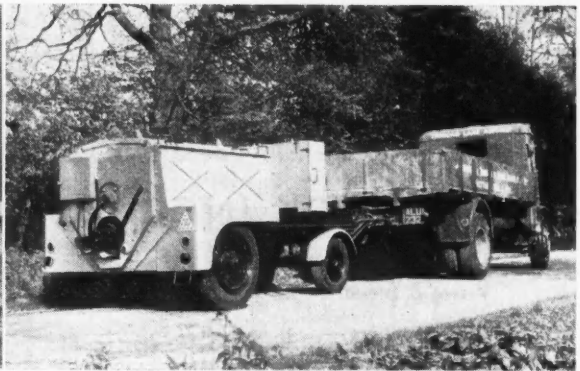
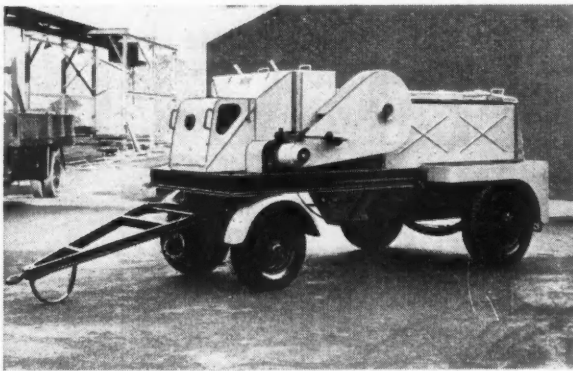
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INDEX TO ADVERTISERS

	Page		Page		Page
A		E		N	
A.B.C.D., (Raynes Park), Ltd.	1234	Eagre Construction Co., Ltd.	1240	National Federation of Demolition	
Acrow (Engineers), Ltd.	lib, iib	Eddison Plant, Ltd.	Cover v	Contractors 1258, 1259	
A.E.C., Ltd.	1227	Eimco (Great Britain), Ltd.	vilib	N.C.K.-Rapier, Ltd.	vib, vlib, 1249
Airviews, Ltd.	1234	Equity Credit Co., Ltd.	1227	Newton Sales Co., Ltd.	1262
Allam, E. P. & Co., Ltd.	xvi, 1225, 1228			Northide, Ltd.	iva
Allen, Alfred, & Son, Ltd.	1328	F		P	
Allen, John, & Sons (Oxford), Ltd.	1320	Fodens, Ltd.	ix	Parker, Frederick, Ltd.	1225
Amalgamated Limestone Co., Ltd.	1332	Ford Motor Co., Ltd.	1229, 1239	Peel, H., Ltd.	1328
Armstrong Cork Co., Ltd.	1343	Foster, Arthur, (Constructional Engineers), Ltd.	1236	Pegson, Ltd.	1354
Arup & Arup, Ltd.	1331			Penhill Supplies, Ltd.	1238
Audax 1236		G		Phoenix Shovel Co., Ltd.	1256
Austin Motor Co., Ltd.	1272	Gazeway Plant Hire, Ltd.	1238	Pike, George, Ltd.	1323
Avon Insurance Co., Ltd.	1362	Gibson, John, & Sons, Ltd.	1340	Planet Plant Hire 1232	
B		G.K.N. Reinforcements, Ltd.	1273	Q	
Babcock and Wilcox, Ltd.	1353	G.M. Power Plant Co., Ltd.	1262	Quarry Plant Hire Service (N.W.), Ltd.	1360
Bamford, J. C., (Excavators), Ltd.	va, i, ii, iii, iv	Goodwin-Barsby & Co., Ltd.	xv		
Bartley, Ernest, Ltd.	1260	Goodyear Tyre & Rubber Co., Ltd.	1322	R	
Benford, Ltd.	Cover iv	Government of Canada Ltd.	1335	Rapid Metal Developments, Ltd.	xiv
Bigwood Bros. (Birmingham), Ltd.	1356	Green, Thos., & Son, Ltd.	1261	Raybestos-Belaco, Ltd.	1286
Blackwood Hodge Cover vi and vii		Greenham Equipments, Ltd.	1268	Record Tower Cranes 1232	
Blaw Knox, Ltd.	viii	Gullick, Ltd.	1336	Road Machines (Drayton), Ltd.	ivb, vb, 1357
Blue Peter Retreads, Ltd.	1263	H		Ruston & Hornsby, Ltd.	1359
Bomford & Evershed, Ltd.	1250	Hawley Plant, Ltd.	1254	S	
Booth, Sam, Ltd.	1260	Heath, R. H., & Co., Ltd.	1342	Sanplant (Derby), Ltd.	1337
Bowmaker Group 1265, 1275		Holman Bros., Ltd.	1333	Saxton & Co. (London), Ltd.	1326
Braham, Patterson & Benham, Ltd.	1288	Hudson, Robert, Ltd.	1252, 1253	Scotney, Tom M., Ltd.	1236
Branch, Jack, (London)	1238	Hymatic Engineering Co., Ltd.	1358	Selby, P. E., Ltd.	1236
Bray Construction Equipment, Ltd.	ib	I		Sellers, H., (Leeds), Ltd.	1234
Bristol Plant Hire, Ltd.	1226	International Harvester Co. of Gt. Britain, Ltd.	vi, vii	Simdine vii	
Bristol Pneumatic Tools, Ltd.	xia	J		Simplex Concrete Piles, Ltd.	1336
British Cellophane, Ltd.	1256	Johnson, C. H., (Machinery), Ltd.	1231	Skylit, Ltd.	1270
British Oil and Turpentine Corporation, Ltd.	1341	K		Smith, Thos., & Sons (Rodley), Ltd.	Cover vii
British Steel Piling Co., Ltd.	1234	Key Engineering Co., Ltd.	x, xi	Sommerfelds, Ltd.	1340
Broom & Wade, Ltd.	1255	L		Steel Fabricators (Cardiff), Ltd.	xa, xia, 1240
Buckton, Ltd.	1256	Lafarge Aluminous Cement Co., Ltd.	1355	Steels Engineering Products, Ltd.	iiia, iia
Builders' Accident Insurance Co., Ltd.	1324	Leavesley, J. T., Ltd.	1234	Stent Precast Concrete, Ltd.	xvi
C		Leyland Motors, Ltd.	1329	Struel Bros., Ltd.	1241
Caledonian Tactor & Equipment Co., Ltd.	xiva, xva	Lewis & Lewis, Ltd.	1250	Sumo Pumps, Ltd.	1358
C. & R. Constructions, Ltd.	1339	Lumley (Plant), Ltd.	1255	Survey & General Instrument Co., Ltd.	1341
Cartruk, Ltd.	1236	M		Sykes, Henry, Ltd.	1340
Case, J. I., Ltd.	1274	Machinery (Continental), Ltd.	1227, 1267	Symes (Plant Sales), Ltd.	1228
C.E.T. (Plant), Ltd.	1269	Magnet Joinery, Ltd.	1257	T	
Chain Link Fencing, Ltd.	1230	Marshall's Organisation xii		Tanogys, Ltd.	1342
Chamberlain Plant, Ltd.	1261	M.E. Engineering, Ltd.	1236	Thompson, W. L.	1230
Clifton, L., & Sons, Ltd.	Cover iii	Michigan (Great Britain), Ltd.	via, vilia	Thwaites Engineering Co., Ltd.	v
Cohen, George, Sons & Co., Ltd.	1330	Mills Scaffold Co., Ltd.	ia	Trianco, Ltd.	1338
Cole, E. R., Ltd.	1287	Moore's Plant, Ltd.	1344	U	
Compactors Engineering, Ltd.	1271	Motor Rail, Ltd.	1361	Under Water Welders & Repairers, Ltd.	1356
Conlin, B. E.	1356	A.B. Mould & Construction Co., Ltd.	1226	Universal Divers, Ltd.	1240
Contractors Services, Ltd.	1266	Mutual Finance, Ltd.	1287	V	
Corrie, J. B., (Flexitella), Ltd.	1338			Val de Travers Asphalt Paving Co., Ltd.	1323
Costain, Richard, Ltd.	1290			Vickers-Armstrongs (Tractors), Ltd.	xvia
County Commercial Cars (Sales), Ltd.	1325			W	
Cox, H., & Sons (Plant Hire), Ltd.	1354			Walpamur Co., Ltd.	1334
Cripps, R., & Co., Ltd.	xiiia			Whitlock Bros., Ltd.	1226, 1250, 1262, 1328, 1336, 1342, 1360, 1362
Croogon & Co., Ltd.	1321			Winget, Ltd.	Cover i
D				Wright, V., (Leeds)	1286
Dandridge, Arthur F., Ltd.	1228			Y	
Dawson, W. A., Ltd.	1362			Youngman, W. C., Ltd.	xiii
Diving Specialists, Ltd.	1230				
Doe, Ernest, & Sons, Ltd.	1234				
Dorman Long (Steel), Ltd.	Cover ii, 1233				
Dunlop Rubber Co., Ltd.	1360				

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Forms and particulars (including Bill of Quantities) from Borough Architect on written application by 24th SEPTEMBER, 1960.
R.I.B.A. Contract plus Supplementary Conditions available for inspection.
Tender to TOWN CLERK, Civic Centre, Southampton, by 10 a.m., 31st OCTOBER, 1960.

STEPNEY METROPOLITAN BOROUGH COUNCIL.

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TENDERS are invited for the SUPPLY and ERECTION of a PREFABRICATED STRUCTURE on the ROOF of the MUNICIPAL OFFICES, 227-233 Commercial Road, E.1.
Structure intended as accommodation for staff amenities. Approx. overall dimensions 40ft. x 50ft.
Forms of Tender, with Conditions, etc., obtainable from the BOROUGH ENGINEER AND SURVEYOR at the Municipal Offices.
Closing date for Tenders: 31st OCTOBER, 1960.

THE LANCASHIRE RIVER BOARD AND THE RIVER CROSSENS INTERNAL DRAINAGE BOARD.

RIVER CROSSENS LAND DRAINAGE SCHEME. CONTRACT NO. 3—RECONSTRUCTION OF WIGAN RAILWAY LINE CULVERTS.

APPLICATIONS are invited from contractors experienced in railway work, for the CONSTRUCTION of Two 12ft. x 5ft. REINFORCED CONCRETE TWIN BOX CULVERTS under the Wigan-Southport Railway Line, as part of the above Scheme.
One Culvert is approx. 120ft. long and the other 40ft. long, and the work is to be subject to the conditions and timings to be agreed with the Railway Authorities. A small amount of River Channel Excavation Work is also included.
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The Board do not bind themselves to accept the lowest or any Tender.

H. HOLMES, Clerk of the Lancashire River Board.
48 West Cliff, Preston, Lancs.

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CUBITTS—HOLLAND & HANNEN AND CUBITTS (GREAT BRITAIN), LTD., invite applications from **COST AND BONUS SURVEYORS** experienced in measuring complete siteworks, and assessment of targets. Permanent and pensionable positions, with good prospects. Then are first-class opportunities for experience in detail, and salary required, to Personnel Manager (CJ3483), 1 Queen Anne's Gate, London, S.W.1.

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CLEVEDON URBAN DISTRICT COUNCIL.

HIGHWAYS ACT, 1959.

DURBIN PARK ROAD PRIVATE STREET.

TENDERS are invited for the MAKING-UP of DURBIN PARK ROAD, approx. 550ft. in length, under the Highways Act, 1959.
The work involves the Provision of Kerbing, Channelling, Re-forming the Base, and Provision of Tarmacadam Surfacing to both Carriageway and Footways.
The Drawings may be seen, and the documents obtained from the Engineer and Surveyor, The Council House, Clevedon.
Tenders to be returned to the undersigned not later than FRIDAY, the 7th October, 1960, in sealed envelope marked "Private Street Works."
The Council do not bind themselves to accept the lowest or any Tender.

H. B. HANSON, Clerk of the Council.
The Council House, Clevedon.
10th September, 1960.

CLEVEDON URBAN DISTRICT COUNCIL.

HIGHWAYS ACT, 1959.

EDWARD ROAD SOUTH PRIVATE STREET.

TENDERS are invited for the MAKING-UP of EDWARD ROAD SOUTH, approx. 700ft. in length, under the Highways Act, 1959.
The work involves the Provision of Kerbing, Channelling, Re-forming the Base, and Provision of Tarmacadam Surfacing to both Carriageway and Footways.
The Drawings may be seen, and the documents obtained from the Engineer and Surveyor, The Council House, Clevedon.
Tenders to be returned to the undersigned not later than FRIDAY, the 7th October, 1960, in sealed envelope marked "Private Street Works."
The Council do not bind themselves to accept the lowest or any Tender.

H. B. HANSON, Clerk of the Council.
The Council House, Clevedon.
10th September, 1960.

BATCHER REQUIRED for ready-mixed concrete central mixing plant in Horsham.—Applications to JOHN HEAVEY, LTD., Ready-Mixed Concrete, Shopwyke Road, Chichester, Sussex.

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BOROUGH OF HEMEL HEMPSTEAD.

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C. W. G. T. KIRK, Town Clerk.

Town Hall, High Street, Hemel Hempstead, Herts.
12th September, 1960.

COUNTY BOROUGH OF BLACKPOOL.

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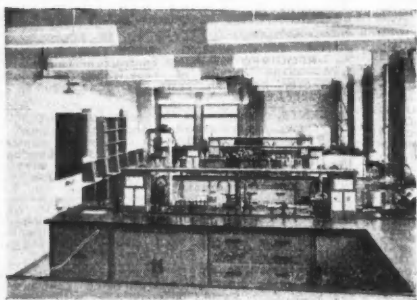
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THE CONTRACT JOURNAL

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PRINCIPAL CONTENTS

	PAGE
A Lawyer Considers: Employees' Remuneration During Sickness—Safe System of Working	1292
Highway and Bridge Developments in the U.S.A.: British Engineers' Impressions	1293
Manchester - Crewe Electrification Completed: First Stage in Midland Region's Modernisation	1295
Public Lighting: Trend of Advances in Technology, by J. G. Holmes, A.R.C.S., B.Sc.	1297
Reconstruction of Hills Road Bridge, Cambridge	1299
Fire Research, 1959: Advances in Modelling of Fires	1300
French Group Develop Monorail Prototype	1301
film. Development Grants for Tanganyika	1302
Architectural Uses of Stainless Steel	1303
Late Construction News	1304
Progress on London Transport's Metropolitan Line	1305
Men and Movements	1306
Minister to Open Public Works Exhibition at Olympia	1307
Talking of Safety, by "Dragee"	1308
Central Boiler House to Serve Four Liverpool Hospitals	1309
Trade Section	1310
CURRENT CONSTRUCTIONAL ACTIVITIES:	
Projects	1313
Contracts	1314
Awards	1318

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JOB FOR THE UNIONS

NOT altogether surprisingly a certain amount of popular interest in the T.U.C.'s interim report on industrial disputes was aroused by its references to shop stewards. Let it be said at once that the great majority of shop stewards do their job sensibly and well. In this respect building and contracting is at least as fortunate as most. But if contracting can quote no instances of stewards ordering thousands of workers on strike for days on end without the consent or authority of the unions concerned, it is undeniable that there have been instances where seemingly irresponsible conduct has imposed a brake on output or brought about a disruption of organisation as costly as it has been abortive. Indeed, at times relations between employers and employed have been so impaired that only the solid foundations of the industry's negotiating councils have prevented open strife on a national scale.

In almost any industry the steward can perform a useful, even vital, function. Indeed, he occupies one of the most important positions in the trade union movement. He is a spokesman for the worker on the job; he is the man who takes up the workers' grievances direct with the management; he may, and invariably should, be advised by the management when working changes are contemplated. Yet all too often, even in the contracting industry, which can boast of an industrial relations record second to none, a very large proportion of the unconstitutional or unofficial stoppages of work centre on stewards in one way or another.

The T.U.C. report goes some way towards recognising this and suggesting a solution. Naturally some emphasis is laid on the deficiencies of employers. Not all of the latter are aware of the basic principles of good labour relations. The T.U.C. report makes it quite plain, however, that stewards are not entitled, as they would sometimes have everyone believe, to disobey union rules and agreements. The unions themselves, the report says, should be more vigilant here, and should withdraw credentials from any stewards who, after warning, repeat actions "contrary to rules or agreements." Some hard words are also said about organisations of shop stewards in a group of factories or in a whole industry, and about national centres or conferences of shop stewards "irrespective of their industry"—an unmistakable sideways thwack at the extreme political elements.

The T.U.C.'s views, if acted upon (and they are not mandatory) could result in some improvement. But it is doubtful whether they go to the core of the problem, particularly as regards that part of the contracting industry—the larger jobs of recognisable national importance—which seems to attract a certain type of steward. He often comes to the job with little, if any, training for it; the system, if one may call it that, of election is a pushover and requires but a minimum of determination on his part; if he has an axe to grind things are that much easier for he has a ready-made soap box. The result is that the more suitable candidate cannot hope to carry the day.

Here it would appear that the building unions themselves could help. By providing the training facilities that are so urgently needed in this field, by using the right of access of their representatives to sites to give guidance on a steward's rights and duties, by taking firm action against those who seek to use the role of steward for political ends, and by encouraging more men of the right type to come forward for the job the building unions could be doing themselves and the industry a big service.

If the unions think these suggestions are rather too naive, they ought to think again. They could be the means by which, once again, the building industry shows the way in labour relations. They could be the means by which the title shop steward takes on a new meaning, born of trust and confidence, rather than the present one, born of fear and frustration, understood by employers and workers alike.

A LAWYER CONSIDERS . . .

Employee's Remuneration during Sickness — Safe System of Working

IT is not very often that employees are asked to enter into written service agreements with their employers. More often than not the contract consists of a short letter stating the salary offered and one or two more details as to hours and holidays together with any other conditions discussed at an interview. Difficulty arises when circumstances not covered by this rather sketchy contract occur and disputes as to the respective rights of the employer and employee arise. A recent case *Orman v Saville Sportswear, Ltd.* [(1960) 3 All E.R. 105] illustrates this difficulty.

O claimed £250 from S Ltd. as the amount of bonus he would have earned by his employment with S Ltd. for some two and a half months during which he was away sick. In 1954 O had seen S Ltd.'s managing director and after negotiations S Ltd., had offered O the post of production manager at their factory at £30 per week plus a bonus estimated on output which was accepted by O who began work. Some 18 months later O fell ill and after being away seven weeks was ready to return to work. He discovered S Ltd. had employed another production manager and was unwilling to take a more junior post which was offered to him. Ten days later S Ltd. terminated O's employment. S Ltd. paid O's salary up to the termination of the contract and alleged that this payment was an act of grace on their part; they refused to pay any part of the bonus.

This sort of case, where the parties enter into contracts that are not explicit on important matters, raises the very difficult question of how far the courts will, so to speak, make good the omissions of the contracting parties by implying terms which the parties have not expressly stated. The most famous statement by a great judge, Scrutton L.J., of the way our courts approach this problem is as follows: "The first thing is to see what the parties have expressed in the contract; and then an implied term is not to be added because the court thinks it would have been reasonable to have inserted it in the contract. A term can only be implied if it is necessary in the business sense to give efficacy to the contract; that is, if it is such a term that it can confidently be said that if at the time the contract was being negotiated someone had said to the parties, 'What will happen in such a case', they would both have replied, 'Of course so and so will happen; we did not trouble to say that; it is too clear.' Unless the court comes to some such conclusion as that, it ought not to imply a term which the parties themselves have not expressed. . . . Unless we are satisfied that it is an implication which must necessarily have been in the minds of both parties, we cannot imply a term which they have not expressed."

The law relating to an employee's right to wages or salary during sickness has been complicated by the widespread misconception arising out of a decision of the Court of Appeal, *Marison v Bell*, which was generally believed to lay down that there is always an obligation on employers to pay wages during absence through sickness unless and until the contract is properly determined. This proposition is true but needs qualification. Firstly, it cannot apply to contracts where the employer pays for what the employee does but only to contracts where the employee is paid for holding himself ready and willing to carry out his employer's instructions; in the former type of contract if a man

is away sick clearly no work is done and no right to payment can arise. Secondly, the proposition may be altered or nullified by some express terms of the contract or by some terms which, though not expressed in the contract, are part of it, for example a custom of the trade or some office memorandum or practice on the subject. Thirdly, the proposition may be altered because the courts will be prepared to imply a term on the principle laid down by Lord Justice Scrutton and quoted earlier. It is only when so qualified that the proposition given above became an accurate statement of the law.

Applying the proposition and its necessary qualifications to the facts in this case the court decided that clearly O's employment was of the type where the employee holds himself ready and willing to carry out his employer's instructions; that there was no express contractual provision covering this payment of wages during sickness nor was there any other provision by reference to custom or office or factory rules. O's contract was therefore still in existence and his remuneration was payable until it was terminated unless S Ltd. could persuade the court that, under the principle expressed by Scrutton L.J., the court would imply a term to the contrary. The court therefore asked—if when O was engaged the question of his not being paid during sickness had been mooted, would both O and the managing director of S Ltd. have said, "Of course that's understood—no payment of wages during sickness"? The court was quite certain that the parties would not have agreed on such a reply. The court therefore refused to imply any term as to payment of wages during sickness, and decided that the rule in *Marison v Bell* applied and that S Ltd. were bound to pay O his remuneration up to the date of the contract being determined.

Meaning of Bonus

The only question that remained for the court was whether the bonus was part of the remuneration or not. S Ltd. argued that a very clear distinction must be drawn between the basic wage which was payable if the employee was ready and willing to carry out the employer's instructions and the bonus which was only payable if the work was done; the bonus was an incentive to production and consequently if one was unable to work it was wrong that the bonus should be included in the wage one was entitled to recover when sick. O argued on the other hand that you could not differentiate in this way between basic salary and bonus and that he was entitled to receive his remuneration which was his basic salary and bonus, worth about £20 per week, for his work which included all his efforts in organising the factory resulting in a satisfactory output. This is a difficult problem and the answer must largely depend in each case on the terms on which the bonus is paid. In this case the court felt that both bonus and basic salary were recoverable as the full remuneration which O received; his claim for the bonus therefore succeeded.

The best way to solve the kind of difficulties which arose in this case is to have a written agreement which quite clearly sets out the parties' rights and liabilities on payments of wages or salary during sickness. If for any reason an employer does not wish to do this then he should remember that, unless and until he terminates the employment of a sick employee, the rule in *Marison v Bell*, subject

to the qualifications set out earlier, will apply and he will be bound to pay the employee his remuneration.

Safe System of Working

ANOTHER case, not yet reported, *Dixon v Cementation Co., Ltd.* is of interest in connection with the employer's duty to take reasonable care for the safety of his employees. The facts were that D lost an eye when a fellow workman botched a job of hitting in a nail when they were working together. The place of work at the time was a low tunnel and very confined so that D's head was only about a few feet away from the nail which was being hammered into a board D was holding. D's claim succeeded and he obtained damages of £2,580. The employers then appealed.

The employer's obligation to his employees is often expressed as a duty to provide a safe system of working and the employer argued that in order to succeed D had to set out what a safe system of working would be for this operation. The Court of Appeal felt that this argument was not correct; there might be some cases where it would be difficult to imagine any other possible way for the work to be done than the way alleged to be unsafe and then there would be some obligation on the employee to show what other and safer methods could have been adopted; but in many cases there must be several alternative methods of working and then the Court of Appeal thought the injured employee could fairly say that there must be some less dangerous way of doing the work and it was not for him, but for the employer, to discover and order that less dangerous way. The Court therefore felt that there was no obligation on D to show alternative and safer methods of carrying out this operation.

The only question then was—had the employers here taken reasonable care for D's safety? They argued that this sort of method of working had been going on for 20 years and no employer could think there was anything very hazardous about it. D, however, could show that there had, from time to time, been some facial injuries to other employees; that his head was forced to be dangerously near the nail; and that the fellow workman was only a general labourer and that some more skilled or responsible workman should have done this job. One might suppose of course that hitting a nail in was not a very skilled operation but of course the place where that operation was to be done might tend to make it a skilled operation; anyway, the Court felt that a more skilled man should have done the job.

The Court therefore decided that, while the case was a border-line one, there was sufficient evidence to show that the employer had failed to discharge his obligation to D and they therefore upheld the lower court's decision in D's favour.

The case shows that the discharge of an employer's common law obligation, quite apart from any statutory obligation under any relevant safety regulations, requires constant thought from management right down to foreman and charge-hand level. The question to ask is—"Is this way of carrying out this particular operation, even though we've always done it this way, the safest way to do it and are X and Y the right men to do it?" If only to produce a good claims record for premium purposes, let alone preventing accidents, the more frequently that question is asked the better.

HIGHWAY AND BRIDGE DEVELOPMENTS IN THE U.S.A.

British Engineers' Impressions

FOLLOWING their 15,000-mile study tour of highway and bridge developments in the United States last April, organised by the Pavings Development Group (Concrete and Soil-Cement), members of the British party of engineers and contractors last week gave their impressions at a meeting arranged in London by the Institution of Highway Engineers.

The very large audience were welcomed by the president of the Institution, Mr. JAMES DRAKE, who said the tour had been a great success. In a tribute to the American engineers and professors and others who had spared no effort to make the visit so valuable, he said they all went out of their way to point out mistakes that had been made; indeed, one had said that they had learned the hard way.

Speaking of the highway situation in this country, the president added that those who had taken part in the tour felt that unless far more money was placed at the disposal of the Ministry of Transport and the highway authorities we should get into a terrible mess in far less time than many people realised. He was gratified that so many had accepted the invitation to attend the meeting; and he welcomed particularly Mr. Baker (chief engineer, Ministry of Transport).

URBAN AND INTER-URBAN MOTORWAYS

Two Papers on this subject were presented by MR. W. R. THOMSON (county surveyor, Worcestershire), and MR. R. F. EARLEY (consulting engineer).

Mr. Thomson began by giving a brief general description of where the visitors went in the U.S.A. and what they had seen. He then came to consider the lessons that had been learned.

Firstly, the Americans were far ahead of us in this country in their appreciation of the menace of mounting traffic volumes, even allowing for their vastly greater problems, resources and spaces. The very size of their programmes proved that; but it showed up in many other fundamentals. Having found that they had never planned on too generous a scale, there was a universal acceptance of the need to adopt spacious motorway layouts. Not for them the cramming of a motorway into 88ft. between hedges. They had their fences set well back from the outside of the hard shoulders, and their rural standard central reservation was now 56ft. wide, giving proper room to provide against head-on collisions of crashing vehicles and various other advantages. That was one lesson which simply must be learned in this country.

Secondly, he saw the proof that motorways prevented accidents. In California, for example, the death rate on their motorways over the past five years was only one-third of the rate on their roads of other types.

Thirdly, he had seen nothing that could not be matched, skill for skill, courage for courage, by our own engineers—at least to the lesser scale demanded by our topographical and structural problems.

Fourthly, the party had seen much to learn and to copy; yet we had matched American practice in this country in our speed of building, once a start had been made on the actual site.

Fifthly, it was gratifying that we were even ahead of the Americans in some matters, as, for example, our bridge headroom standards, and particularly in the way in which we limited the spread of fringe development. Our more rigid planning control system would lighten the

labour of Sisyphus which the Americans faced in places like San Francisco and Los Angeles, where each urban motorway fostered further outward-spreading development which seemed to call for bigger and better motorways and interchanges in successive and seemingly infinite cycles.

Finally, he was most deeply impressed by the entire absence of arrogance among all the scores of engineers and other experts whom the party had been privileged to meet. Against the vastness of their performance, this came almost as a surprise. They were quick to admit past mistakes, completely ready to learn from them and willing to consider every suggestion and view that the visitors offered. Their urge to pit their professional skills and energies against American traffic problems amounted virtually to a sense of dedication.

If the visitors had learned that alone from their American journey, as something for all concerned in this country to emulate, their time had been well spent.

Mr. Earley gave his impressions, illustrated by slides. It would be impossible, he said, to isolate his impressions of the inter-urban and urban motorways from his overall general impression of the American highway system, and he had no hesitation in saying that the Americans had gone a long way towards solving the traffic problem. Therefore, his first impression was of success.

Illustrating part of the road from New York to Chicago, 840 miles (two days' travelling), he said, to give an idea of scale, that the distance from John o' Groats to Land's End was about 750 miles. On the whole length there was not one crossroad at the same level, not one traffic light, and there was nothing to interfere with the steady coach pace of 60 m.p.h.

Type of Construction

The type of construction of the road was not vastly different from ours. Most of it was a two-lane carriageway; it was increased to three lanes on approaching New York or Chicago. It had hard shoulders of varying width, but these were more in evidence in the later constructed lengths. The drainage was unusual. The central reservation—in some cases as wide as 56ft.—was depressed and formed a ditch into which the road drainage was diverted. This had two further important functions; it prevented vehicles out of control careering over the central reserve on to the other carriageway, and snow could be bulldozed directly into the ditch. It was claimed that the ditch, as a safety measure, had reduced accidents considerably.

The Americans, he continued, had had the advantage of carrying out a great deal of work, but in his opinion the technical knowledge now accumulated on our own motor road construction in this country was not in any way behind that possessed by the Americans. Of course, there were odd aspects on which engineers of different countries exchanged views; but we had the technical knowledge, and he was sure this applied also to our contractors. We could build equally as well as the Americans and in as good a time.

Mr. Earley's next illustration showed a traffic interchange in the centre of the city of Los Angeles. He commented that American engineers had abandoned the roundabout as a traffic interchange; in fact they, and their Continental counterparts, were removing all points on their highways that required motorists to use their initiative. Two motorists negotiating a traffic island had to make up their minds on a course of procedure to weave successfully around a roundabout. The Americans had thus replaced it with the functional spiral

lane interchange. On first appearance—and particularly from the usual plan view—these interchanges appeared very complicated. But they were not really difficult, for two reasons. First, all Americans were natural motorists and such an interchange would not appal them at all; secondly, the direction signing was extremely well positioned and took the form of large banner signs over the spiral the motorist wished to take.

Another picture showed an expressway in Chicago passing through the Post Office building, to emphasise another aspect of American roadwork. The American engineer, he said, would go to endless trouble and use the highest degree of skill to make his new structure fit the urban area through which it passed. Every structural expedient was used to get the road through; elevated roads, sunken roads, heavy retaining walls, tunnels—the whole range of structures—with a high degree of aesthetic success.

In trying to analyse why American traffic seemed to work and why such terrific energy and thought were put into highway matters, he had concluded that the Americans, and many Continental countries, really considered the motor car to be part of their way of life. Every class of person from the schoolchild upward seemed to own or drive a car. They were quite prepared to accept changes that would enable them to use their own cars without delay and frustration.

In this country the situation seemed to be quite the reverse; probably, from our ancient heritage, we disliked change. He would not suggest for a moment that we should copy the American road pattern, although much was to be learned from a close study of it. Our road problem was particularly our own. But he did suggest that we should adopt the American attitude towards the problem and try to infuse here a sense of urgency into the immediate programme of work and some effort to know the desirable ultimate solution.

Discussion

MR. LEDSON sought information on the width of traffic lanes, and asked whether the party had come to any conclusions from American practice; speed of travel; the gradients on interchanges, slipways, and so on. He added that concrete materials seemed to be used mostly.

Mr. Thomson replied that his general impression was that the width of traffic lanes was about 12ft.; the party had seen nothing there to make them feel it was not right.

On the main express roads and motorways there were speed limits of 65 m.p.h. for cars and, he believed, 50 m.p.h. for commercial vehicles. The coach on which they had travelled had maintained a steady 60 m.p.h. When travelling over a long straight at a steady speed one lost all conception of the speed, and he felt that this presented a serious danger. In this country we might eventually have to impose speed limits for motorways, mainly perhaps because of dangers from wind, dust and that sort of thing. In the urban areas in America the vehicles travelled at about 50 m.p.h., and they maintained it with exceptionally short distances between vehicles.

He had not a definite figure for the gradients at intersections, but they seemed to be about 1 in 25.

As to materials of construction, concrete had predominated on the New York-Chicago run and at Los Angeles and San Francisco. But he was also interested in the way in which the Americans used structural steelwork in their loops and

approaches to the big bridges and to interchanges; they used it quite lavishly.

The President expressed the opinion that the imposition of speed limits of 60 m.p.h. and in some places 70 m.p.h. was a good thing; it helped in accommodating more vehicles on to the roads.

MR. BAKER (chief engineer, Ministry of Transport) congratulated the Pavings Development Group on their initiative and on the reports of the tour. Particularly valuable was the fact that those who had taken part should disseminate among their professional colleagues the information they had gained.

It had come out already, he said, that we in this country could match the Americans; the whole thing was a question of scale. A traffic volume of 200,000 vehicles in 24 hours had been mentioned; that was from four to five times the amount of traffic on our Great West Road, and volumes of that kind at roundabouts were unthinkable. There were roundabouts that we should have to replace by bridges or light signals. As a temporary measure on existing schemes, and of course on new schemes, we could take account of estimated traffic volumes.

There had been reference to two-lane carriageways in rural areas, but he asked what happened on the wider roads with (say) five rows of traffic if vehicles broke down and the drivers wanted to get them on to the hard shoulders. Did the Americans provide hard shoulders on the middle strip as well as on the side verges?

Speed Limits

Next, he asked if the party had found speed limits to be universal in America and whether there was always a difference in speed limits as between private cars and commercial vehicles.

Mr. Earley said he had not seen many multi-lane roads with five lanes in each direction which had centre reservations; on the motor roads which the party had nearly always encountered having six lanes there was no central reserve. They had travelled on the normal two- and three-lane roads having no hard shoulders on the sides, and to his knowledge there was not a hard shoulder at the centre.

He believed that speed limits applied mostly to the expressways; there seemed to be no such restriction on other roads.

MR. T. H. CARDEN (Hemel Hempstead Development Corporation) said he was very pleased to see what he thought were hydraulically or pneumatically operated kerbs separating the lanes for the incoming and outgoing traffic, but he asked if there were any difficulty in the operation of those kerbs, and whether a vehicle might be crossing one of them when it came up.

Mr. Earley replied that he had not a great deal of experience in the use of mechanically operated kerbs, but the system had been used for some years in Chicago. The impression gained from engineers responsible for the roads was that the control of the raising of the kerbs was subject to a great deal of mechanical difficulty, and most of the kerbs were not in operation when the members of the party saw them. At certain times of the day, when the direction of traffic flow along some of the lanes was changed, they were defined mechanically by barriers or some such means. His impression was that a fairly complicated mechanical system was not acting very efficiently.

He did not know whether such kerbs could suddenly be raised when cars were going over them; but the American traffic controllers knew exactly when the change in the flow of traffic took place. Further, a helicopter was looking after the traffic; it communicated with the cars by means of short wave wireless, and most of the cars were equipped to receive signals of that type.

BRIDGES AND ELEVATED ROADS

MR. A. D. HOLLAND (bridges branch, Ministry of Transport) dealt with this aspect.

Most of the structures he discussed were

of designs prepared about 1950, and to specifications governing stresses, etc., published in 1946. The designs were prepared by a dozen or so independent authorities located in several States, some comparable in size to that of England and situated many hundreds of miles apart. The designs were arrived at by a number of designers at different points in time, and there were widely different economic and other factors.

On some road systems over which the party had travelled a particular design had been used almost to the exclusion of all others. Steel girders and reinforced concrete decks had been used widely in the U.S.A. In the case of a system in Illinois, completed in 1958, 216 out of 265 were made of simply supported prestressed concrete beams. That seemed to predominate only in Illinois; one of the reasons for its choice there was the scarcity and slow delivery of steel in the early stages of the programme.

He had not obtained strictly comparable prices, but the engineers had come to the view that the use of pre-tensioned concrete beams was highly competitive with steel and reinforced concrete structures which they had examined. The numbers of bridges on the Indiana, Illinois and Ohio ring roads averaged almost exactly 1½ per mile in each case. In San Francisco and Los Angeles some structures were of prestressed concrete; but the vast majority were of reinforced concrete hollow box girder construction.

Apart from the physical and economic reasons for the variations in choice of structural materials, the structures also reflected the extent of technical advancement at the times of their design. For example, in many American States the introduction and development of prestressed concrete lagged considerably behind this country.

His main comment on the structures which the party had seen was that they were workmanlike and straightforward, with no fussiness and no frills. They served their purposes and the Americans built them by the thousand. It was impossible to have anything but admiration and envy for them. But he had seen nothing to suggest that the Americans were ahead of us in technical design; and he confessed that he felt very much happier that some of the structures he had seen were in the States and not in this country!

Discussion

MR. ANDERSON (consulting engineer) confirmed the view that the Americans were not ahead of us in most of the techniques; but they were able to get ahead with the work faster than us.

One particular bridge of cantilever design had been duplicated, and the difference between the details of the two was interesting; much more modern box-type members were used in the later edition.

Another very interesting feature was that the types of design of bridges in America were based very largely on economics, as in this country; what might be economic in America might well be uneconomic here. One aspect to be remembered was the difference in the cost of labour in the two countries; it seemed to him that, basically, wages in America were, roughly, three times as much as here, and the cost of living there was about twice as much. The people were better off in America, but labour was much more expensive, and probably designs tended to be more extravagant in certain directions to avoid heavy labour costs.

We had learned from American suspension bridge design and methods of construction. In the case of one suspension bridge, of 1,800ft. span, the spinning of cables was employed. In suspension bridge design, when we came to spans of about 1,500ft., it was rather difficult to prefabricate the cables as had been done in the case of smaller span bridges. The spinning of cables had not been adopted in Great Britain so far, but it would be done on the new Forth and Severn Bridges.

Another thing learned from Americans was that, with their large resources of

plant, they were able to undertake very vast programmes. Further, the fact that they had so much work to do helped them to maintain a little more continuity; and he felt that if our Government had a longer term plan for some of the expensive structures and motorways we might be able to cheapen the cost and to get the work done more quickly.

CONSTRUCTION—CONTRACTORS' VIEWPOINT

MR. O. DAVIES (joint managing director, Leonard Fairclough Ltd.) said America was a much larger country than ours and consequently many more roads were required. Even so, the programme undertaken there of 40,000 miles of arterial roads, of which approximately half had already been accomplished, made our national programme seem very small indeed.

Road construction could possibly be divided into two categories—that through open country and rural areas, and through urban and highly built-up areas. It might be said that it was easy to build long lengths of road in America, where there were vast stretches of open country. Possibly that was so, but he pointed out that this type of construction provided innumerable problems and needed big and heavy constructional plant and equipment, involving very substantial capital outlay which could only be justified if there were some prospect of continuity of work over a lengthy period.

Similar Problems

Certain lengths of our own motorways would have to be constructed through rural areas necessitating somewhat similar problems to those in America. It must be borne in mind, however, that the Americans had, and were constructing, hundreds of miles of wide motorway type roads in very heavily built-up cities. Their roads, being wider in the cities than perhaps we intended to construct, produced problems occasionally larger than ours; but he felt that this was only in isolated instances and that by and large the constructional problems were the same.

Involved, difficult and laborious types of civil engineering construction arose in carrying out large-scale works near adjacent structures and substructures. Roads of several tiers passed through densely built-up areas in America and, in fact, became massive reinforced concrete or steel structures. Apart from producing a positive answer to the traffic congestion, those projects provided really worth-while jobs of work for the engineers and contractors—just what we ought to be doing more of in this country instead of arguing the pros and cons as to whether or not we were able to do so.

From what he had seen during the tour, British engineers and contractors, given the opportunity, could produce just as good and as fast as our American friends; and, with respect for their fine achievements, we could probably better them.

Efficient Planning

The American highway authorities made up their minds very clearly as to what they wanted, well in advance of the work. Designs were progressed well ahead and the contractor had a very full and complete picture of all he was required to produce, long before any site work commenced. This indeed led to efficient, speedy and well organised economic working, from which all parties benefited, and real incentives were apparent at all levels.

Very rarely did changes in design requirements arise during the progress of the works. The Americans believed that any benefit to be gained from technological progress and improvements were better left to the next job or to the next section of work.

Many would say that was all very fine, but the Americans could afford to do it; so should we. Time and money spent on preparatory work, always provided it was sufficiently in advance, were seldom wasted.

To be continued

MANCHESTER-CREWE ELECTRIFICATION COMPLETED

First Stage in Midland Region's Modernisation

COMPLETION of the first stage in the programme to electrify the main lines between Manchester, Liverpool and London, for the London Midland Region of British Railways, was marked this week by the inauguration of electrified services between Manchester and Crewe.

Work, which began three years ago, fell into the three categories of electrical engineering, signal engineering and civil engineering, and involved the construction of a new railway on the old tracks and the heightening of 82 bridges.

Track Preparation

In the early stages of the scheme, after the decisions on the type of rolling stock and the electrical system to be used had been made, the first task was to survey and prepare the track over the 31-mile route for the increased speeds and heavier service required by electric trains.

The track had to be strengthened in parts by digging out clay, increasing the depth of the ballast and improving the drainage. This required no less than 330,000 tons of ballast and about 35 miles of drainage, of which 7½ miles was "formation" work under the track to direct water into drains alongside the track. Three junctions—Wilmslow, Slade Lane and Cheadle Hulme—had to be completely redesigned so that higher speeds could be maintained at these points.

Before any constructional work could begin, a reconnaissance had to be made to decide the actual tracks which were to be electrified and to determine the lines and sidings where electrification would not be justified. Then a layout plan was prepared from ground or aerial survey, or a combination of both, using the Chief Civil Engineer's existing track lay-out as a basis.

A survey of the track revealed various structures, buildings, lighting and signal posts, etc., which were noted and their location in relation to a datum mile post recorded. From the original layout and the survey notes, an up-to-date track layout plan was prepared.

A problem on this route was that of the

remaining span of the old Elton Viaduct which carries the railway over the River Wheelock (the other spans were replaced by embankments over 20 years ago). This bridge is three miles north of Crewe and suffers from the effects of brine extraction from the ground, causing an abnormal rate of subsidence. A new embankment to replace the viaduct has been constructed

than lifting the viaduct every few years and rebuilding it about every 20 years.

Before any overhead equipment could be erected, the Chief Civil Engineer had to carry out permanent way and station alterations and raise overbridges. In addition, the Signal Engineer had to remove the aerial telephone routes and signal obstructions.



Drilling hole for overhead wiring supporting mast

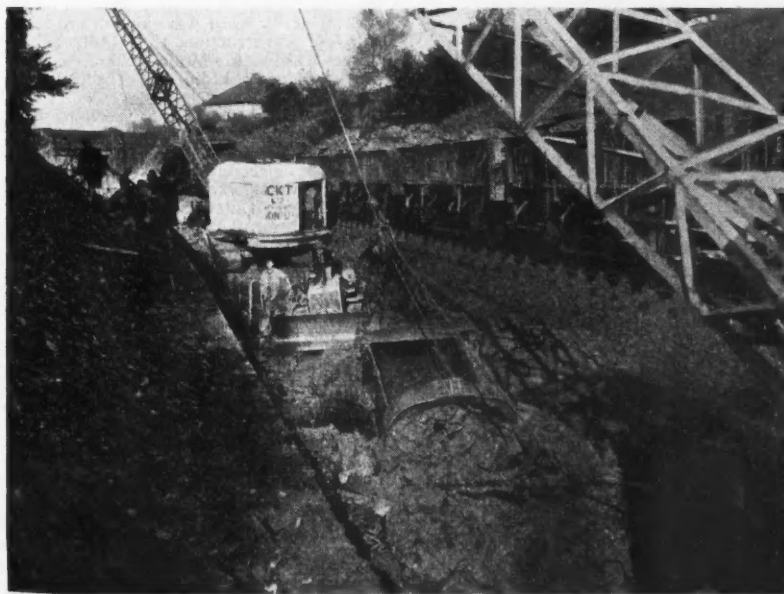
consisting of reinforced concrete pipes, 5ft. in diameter, placed in layers forming a honeycomb structure. This structure is expected to sink 8in. into the ground each year—the same rate as the old viaduct. Every six or seven years an additional layer of pipes will be added to offset the subsidence, a simpler and cheaper project

Not only did bridges have to be reconstructed, but tunnels had to be opened out. The arches and centre piers of three tunnels at Stockport Edgeley had to be demolished, creating cuttings, and two new bridges constructed. The main problem, however, was that this series of tunnels had on top an important road intersection, which necessitated building a new bridge large enough to accommodate a roundabout. To do this entailed demolishing a number of shops and a public house, and building a roundabout bridge which is 170ft. wide between parapets.

At Crewe Station itself, nine out of the 12 spans of the Nantwich Road Bridge which carried the roadway over the station had to be reconstructed to give extra height. The work was carried out in two halves, so that part of the bridge was always open to single line road traffic throughout the operation, which took about nine months. At the same time, the station forecourt and entrance hall were remodelled.

The Stockport Road Bridge carrying the four track main line at the Slade Lane junction was one of the major bridge projects requiring complete renewal. The new bridge consists of four concrete box-girders or beams each weighing about 500 tons and composed of 16 precast blocks. Each of the box-girders independently carries a track and has a clear span between abutments, thus dispensing with the masonry piers and cast-iron columns of the old bridge. These girders were assembled on site and rolled into position.

The task of bridge raising to give essential clearances was achieved by casting a new concrete arch over the arch of the bridge, and when this was completed dropping the old arch by means of explo-



Excavating old ballast and earth prior to lowering the track

sive charges, which left the new arch completely undamaged: a swift and relatively inexpensive technique.

Stations Remodelling

The next obstructions or possible obstructions were old-type stations and platforms which were too short for the new and longer trains.

For smaller stations needing modernisation or complete renewal, a new kind of prefabricated station was developed. It is constructed from standardised components of steel, aluminium, wood, plastic and special compositions produced in factories and assembled by numbers, quickly and easily, on the site. The outstanding features of these stations are their good appearance, permanence and very easy maintenance. They require little or no repainting and need only to be washed down to keep their clean looks.

The existing platforms at Manchester London Road were too short to deal adequately with main line trains normally using the station, and the existing facilities would not have been sufficient to meet intensive electric services. The whole layout has been remodelled to provide additional and longer platforms and a freer flow of traffic into and out of the terminal. The station buildings are also being reconstructed. Two additional platform tracks have now been provided, and the total platform length increased from 7,800ft. to 11,880ft.—an increase of 50 per cent.; in addition, the width of the concourse has been increased by 20ft.

A new power signal box was built to replace 14 manual boxes controlling the area to Gatley and Heaton Chapel.

Overhead Equipment

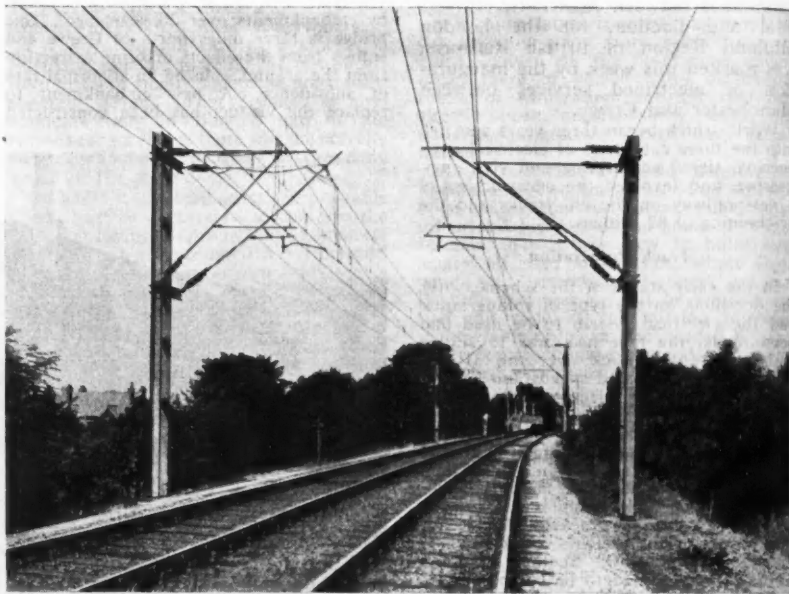
Not until the alterations to the permanent way and the stations had been completed, not until the bridges had been heightened and the tunnels blasted and all other obstructions removed, could work proceed on the erection of the overhead equipment.

Even after the removal of obstructions there was the very formidable obstacle of day-to-day traffic. The maximum amount of work had to be done in the minimum amount of time so as to cause as little disruption to the traffic as possible. In some cases, the engineers had to take complete possession of a stretch of line for a given amount of time, and they had to work fast to be able to release it to traffic again as soon as possible. They were faced with the task of digging 4,500 foundations for supporting masts and erecting no fewer than 6,000 complete structures for the overhead equipment.

To do this in the time available required a highly mechanised operation. A fleet of 100 vehicles was made up into various works trains, each of which was used for a particular class of work in connection with the erection of the traction equipment. First an auger borer unit would enter the particular section of line being dealt with, and bore a succession of holes for supporting structure foundations. This was followed by a steel train which, by crane, lifted masts from stocks carried in the train and planted them in the holes.

at Longsight, and in these depots rolling stock undergoes short-term examination, and the maintenance of overhead equipment is centred at these depots.

The depot at Crewe, built next to the construction depot, incorporates an electric control room for the control of power supplies to the electrified lines between Crewe and Manchester, and similarly will eventually control other lines when they are electrified in the future. The main locomotive works have been reorganised to provide repair facilities for electric



Overhead wiring and supporting structures

Lastly, a train consisting of a continuous stock. This is based on a unit replacement concrete mixing unit, poured concrete into the holes and so fixed the masts firmly into position. Later on, other works trains, composed of flat-topped vehicles and special drum wagons, erected the insulators and fittings and ran the catenary and contact wires.

New Depots

The new locomotives and multiple unit trains require servicing, but the service depots are very different from the old engine sheds, both in design, cleanliness and size. There is one at Crewe and another

at Longsight, and in these depots rolling stock undergoes short-term examination, and the maintenance of overhead equipment is centred at these depots.

The maintenance shed is 300ft. long and 57½ft. wide, with a height to the eaves of 19½ft. The framework is of glued laminated timber portal frames at 15ft. centres with insulated protected metal decking and double patent glazing to the roof, and insulated asbestos-cement sheeting and vertical glazing at the sides. In the shed there are two tracks on inspection pits, each 278ft. long, constructed in concrete with jacking strips alongside.

Contractors

Main contractors for the general construction works were as follow:—

Bridges: Leonard Fairclough, Ltd.; The Norwest Construction Co., Ltd.; Simon-Carves, Ltd.; A. Monk and Co., Ltd.; M. J. Gleeson, Ltd.; and The Butterley Co., Ltd.

Platform reconstruction: Leonard Fairclough, Ltd.; The Demolition and Construction Co., Ltd.; and Mears Bros., Ltd.

District electric depots: Harbour and General Works, Ltd.; C. R. Price; Seddon (Stoke), Ltd.; Octavius Atkinson and Son, Ltd.; Kingston (Architectural), Ltd.; and Direct Labour.

Signal boxes: E. B. Jones and Rawlingson, Ltd.; and Gerrard and Sons, Ltd.

Stations: E. B. Jones and Rawlingson, Ltd.

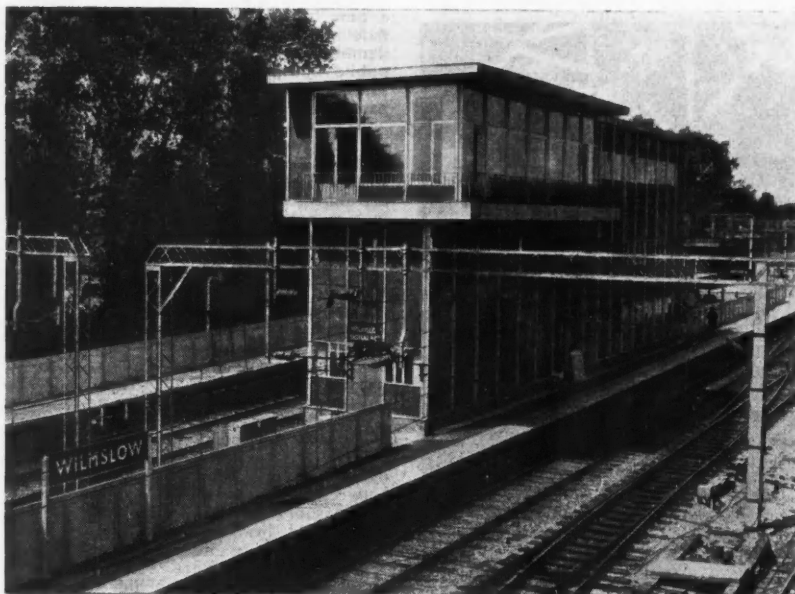
Buildings: C. R. Price; Mitchell Construction Co., Ltd.; E. Wood and Son, Ltd.; and Direct Labour.

Tunnels: Sir Lindsay Parkinson and Son, Ltd.

Other works: Harbour and General Works, Ltd.; and Turriff Construction Corporation, Ltd.

Oxford Road Station: Tinker and Young, Ltd.; E. B. Jones and Rawlingson, Ltd.; and Direct Labour.

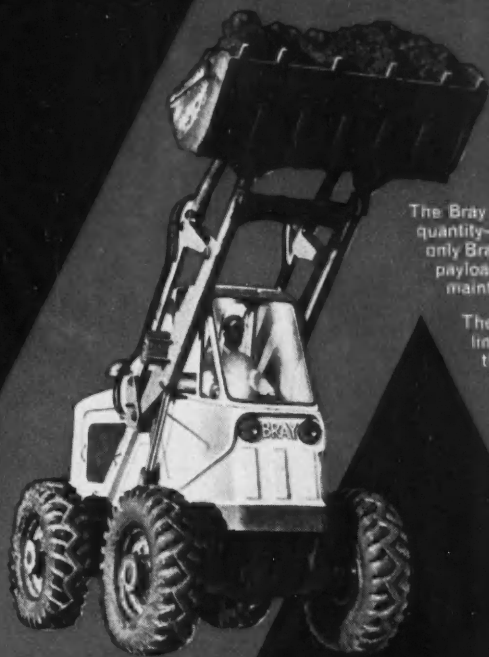
London Road Station: Boulton and Paul, Ltd.; Townson and Sons, Ltd.; Connell and Finnigan, Ltd.; Kyle Stewart and Co., Ltd.; and Direct Labour.



Exterior view of Wilmslow signal box

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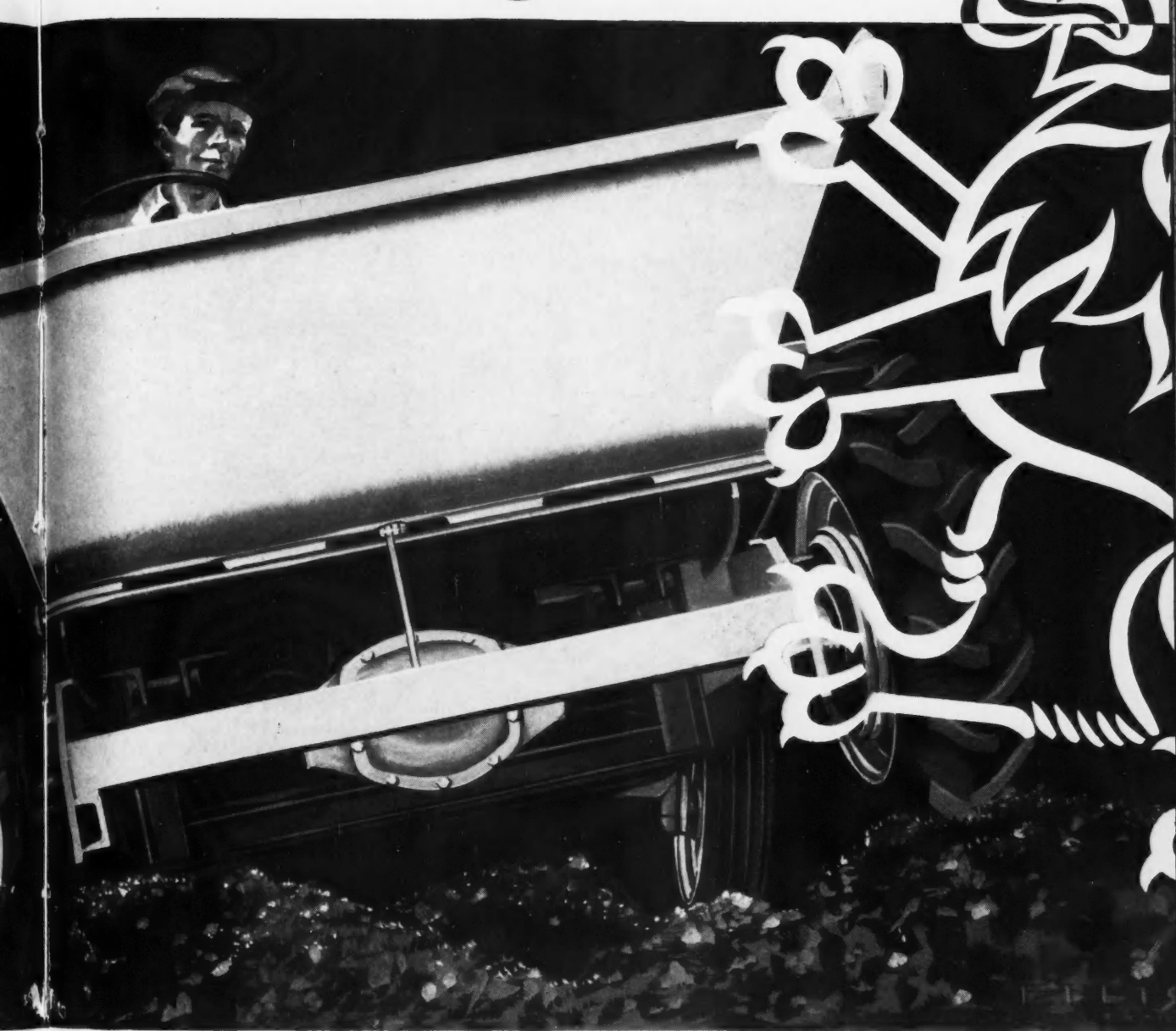
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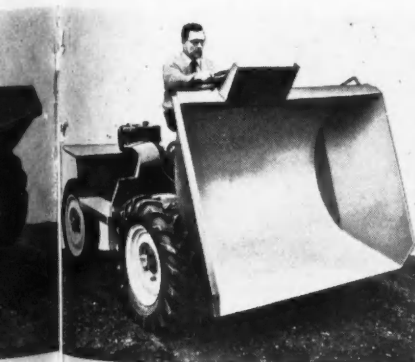
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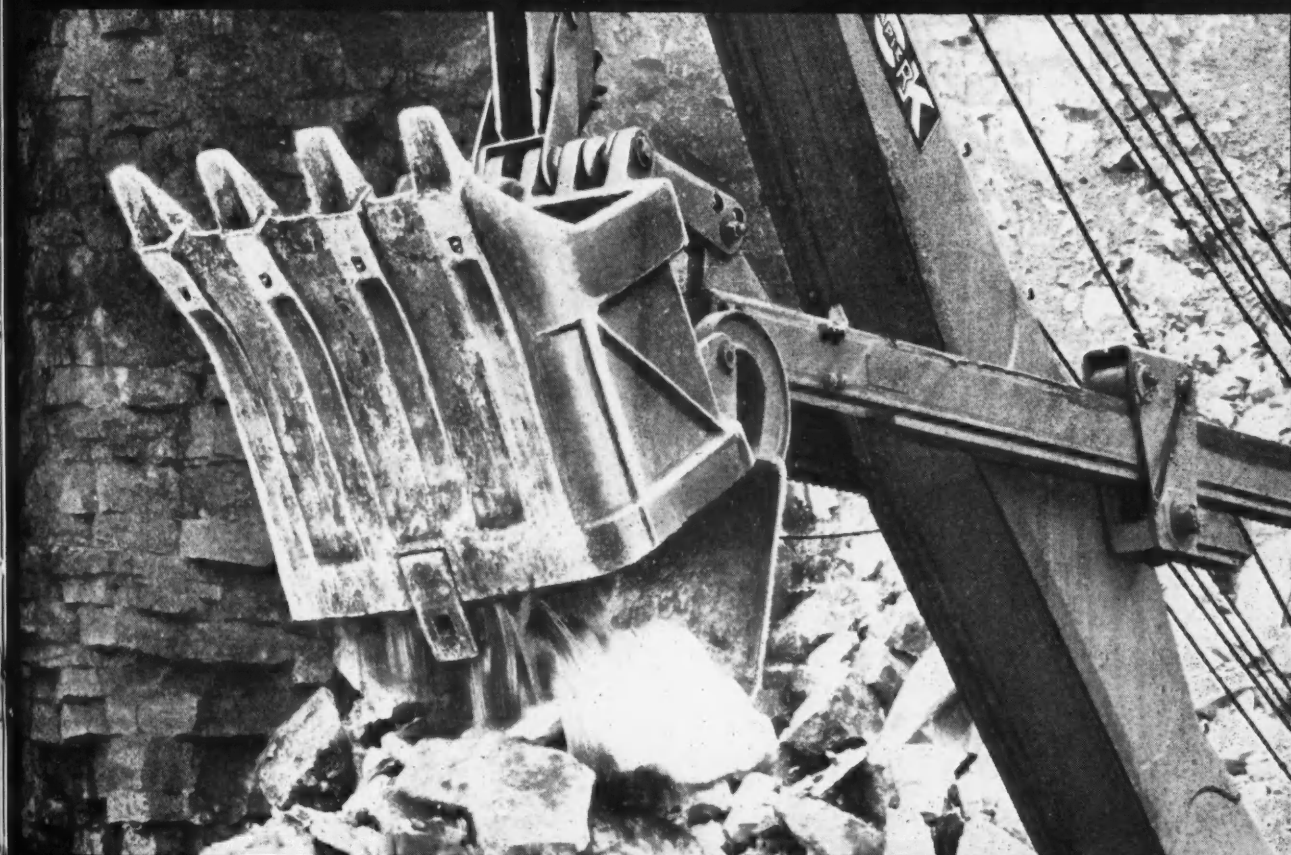
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PUBLIC LIGHTING: TREND OF ADVANCES IN TECHNOLOGY

By J. G. Holmes, A.R.C.S., B.Sc., F.Inst.P., A.M.I.E.E.*

THE practice of street lighting in this country is on the brink of a major change. Within the last year or two there have been experimental installations on larger dimensional scales than in the past, there have been new types of lantern and there have been more efficient and more powerful lamps. The standard practice is, however, based on that of 1935-37, with many refinements but little change in basic character.

This practice is now being subjected to a fundamental re-examination which comes to focus in the committee of the British Standards Institution now engaged on drafting a new British Code of Practice for Street Lighting.

In 1937, the policy for street lighting was clearly stated by the Departmental Committee and since that time workers in many different technologies have combined to improve, to refine and to cheapen the equipment available for lighting installations based on the broad principles stated in 1937. If the technologists can be given a clear idea of what the street lighting engineer wants during the next 25 years, it is to be expected that the same result will be forthcoming.

In order to make the most rapid progress, the requirements of the street lighting engineer should be based on the present achievements in technology and should be directed along the lines of current developments. We should consider what technological advances we can use and how we have to adjust our own techniques of street lighting to take best advantage of the new materials and equipment. These are questions to which every lighting engineer will have his own—and his different—answers.

This Paper does not attempt to give details of advances in technology; each of the many advances would require a paper of its own. All we can do is to review the trend of some of the advances and to see how they can contribute to public lighting.

Light Sources

The technology of lamp design and manufacture is one of the most progressive amongst those connected with public lighting, and it is a convenient starting point for our study of trends. Some of the questions which arise clearly from the progress in light sources will be found to arise in other technologies.

Filament Lamps

The basic lamp is the general lighting service lamp with a tungsten filament. It has been well known for generations and to some extent it has been overshadowed by the more recent inventions of various discharge lamps, but the filament lamp is still changing and improving. The improvements are not spectacular—the efficiency in lumens per watt is only a few per cent. higher than in 1940—but the lumen maintenance, the reliability, the life performance and the price (relative to the cost of living) all show steady improvement. There have been two principal changes in recent years, in the capping cements and in the bulb sizes. Loose caps are not yet a thing of the past, but occur much less frequently due to improved adhesion and to greatly increased tempera-

ture resistance of the cement. For this and for other reasons, the bulb sizes have been reduced; this trend is continuing. The 40-W lamp which we remember as the traditional size was 110 mm. long and 60 mm. diameter in 1940; now there is one manufacturer who makes the 100-W lamp 105 mm. long and 60 mm. diameter, and doubtless the others are considering the merits of this change.

Is this trend an improvement? In some ways it certainly is because it implies higher efficiency and it permits increased automatic production with consequent reduction in costs. But an increase in efficiency in one component often calls for changes in others, and these may not reduce the costs; for example, the small 100-W lamp with a b.c. cap may cause failure of the contact springs in the b.c. lampholder if they are not of a material which withstands the higher temperature. The smaller lamp may cause trouble with the insulation of the wires in the supply cable; the Cable Makers' Association has recently issued a statement on the "Effect of heat from modern electric lamps and fittings on cable installations" in which attention is drawn to the limitations of rubber-like and thermoplastic insulation materials at high temperatures. Natural rubber is limited to 60 degrees C if it is to have a life over 20 years; polythene, polyvinyl chloride and polychloroprene (neoprene) are limited to about 70 degrees C. To quote: "However, at higher temperatures the rubber ages with increasing severity and with the increase in temperature which can be encountered in lampholders with, say, 100-W lamps, the life of the rubber insulation can be reduced to a few years only." Butyl rubber and silicone rubber are recent developments which have high temperature advantages over those already mentioned, but they have limitations and, besides costing more, they are less readily available. It does not follow that a reduction in the costs of the lamps is an overall economy.

One of the objections to filament lamps is their short life, in comparison with most discharge lamps. The cost of a new lamp is relatively small, but the cost of the electrician's time when replacing it may be larger. Recently there have been discussions on the merits of doubling the nominal life, from 1,000 hours to 2,000 hours, at the expense of the light output during the early part of the life and the conclusion was that such a change would not be justified for general use; the increased power consumption for a given light output would more than offset the saving in lamp cost. Street lighting is, however, a rather specialised application, and there may be some justification for replacing, say, 220-V/150-W lamps on a 220-V supply by 250-V/200-W lamps; such a change would increase the life by a factor of about $\times 3$, would increase the light output by about 5 per cent. and increase the power consumption by about 15 per cent. The exact figures involved in any particular comparison are readily available and the pros and cons can be worked out.

Regarding the future of filament lamps, one may hope that their design and manufacture will stabilise soon and that a comprehensive paper on their properties can be given to this Association. These lamps are not primarily designed for public lighting and so we have to take what we can get and to use it to best advantage, that is to suit our own techniques to the technology of lamps. We already know that

lamps up to 60-W are basically all the same size; the 75-W and 100-W lamps are under very close consideration; it is the author's hope that the larger wattages will be made in pairs so that 150-W and 200-W will be exactly the same size, 300-W and 500-W, and 750-W/1,000-W and 1,500-W. This advance in technology would be a rationalisation that we could welcome. There are at present some rapid developments in the technique of temperature measurement in the laboratory and in the provision of standardised "heat test" lamps which will enable us to be more precise in design and in testing the lanterns in which the lamps are used.

Sodium Lamps

At the other end of the range of lamps, the development in sodium vapour discharge lamps has been rapid in recent years. The well-known 140-W, 9,000 lumen lamp has changed somewhat in construction, light output and length of life to the great benefit of street lighting. New lamps have appeared of various sizes and wattages with greater light output and we have yet to learn how best to use them.

The principal use of sodium lamps is for street lighting and there is close liaison between the lamp designer and the street lighting engineer in both the design of the lamp and the design of the lantern and the installation; this liaison is much closer for sodium lamps than for other types of lamp. It is interesting, therefore, to see that sodium lamps are getting larger rather than smaller; the 280-W lamp 520 mm. long (20in.) seems to have been overtaken by 200-W and 280-W linear lamps 3ft. or so long. The call for high efficiency in terms of lumens per watt and the need for accurate control of the light by the lantern both lead to the choice of long tubular lamps and in this instance these technical advantages have been achieved even though they involve bigger lamps and bigger lanterns.

It may be that the recent big improvements in sodium lamps will allow the development engineers to rest on their laurels for a while, perhaps until the street lighting engineers have managed to provide the improved installations which are now possible.

Fluorescent Lamps

The tubular fluorescent lamps now range from 6in. to 8ft. in length and from 4-W to 125-W in power consumption; in all ratings they are showing improvements in efficiency, colour rendering and life performance. These trends will doubtless continue steadily until some scientist makes a new break-through in his research into fluorescent powders and we shall have another burst of new lamps of improved properties. The present level of performance is, however, very high, and public lighting has benefited from the wholesale adoption of tubular fluorescent lamps in industrial and commercial lighting fittings.

The bulb-type of fluorescent lamp has not yet reached the same steady state; there are new types of lamp which the public lighting engineer has not yet put to good use. The MBF range extends from 50-W to 1,000-W and various shapes and sizes are available. The bulb itself acts as the light source and is of such a size that the light is difficult to control with accuracy and efficiency in a lantern of reasonable size. But we have the same story of improvements in efficiency, colour rendering and life performance and we have seen some large reflector and refractor lanterns giving a semi-cut-off dis-

*Extracts from Paper, "Trends in Technology," prepared for the annual conference of the Association of Public Lighting Engineers, being held this week at Folkestone. Mr. Holmes is technical director of Holophane, Ltd.

tribution in which 400-W MBF lamps are used to give very good results.

The street lighting engineer has accepted the idea of a lantern 6ft. long for three 80-W tubular MBF lamps with an output of, say, 15,000 lumens; is it reasonable to suggest a lantern of comparable size for a 1,000-W bulb fluorescent lamp giving 40,000 lumens? If we are to follow the trends in the technology of MBF lamps, without depreciating the level of visual performance in street lighting, we shall have to adjust our own practice accordingly.

Both shapes of fluorescent lamp are available in a part-reflectorised form. A reflector-tube lamp (type MCFR) or a reflector-bulb lamp (type MBFR) has a total light output which is not much less than the corresponding standard design, but the light distribution has marked directional characteristics. There are several types of MBFR lamp and the variety and range will doubtless extend as they become more widely used in industrial situations; has the public lighting engineer any proposals for lamps to suit his requirements, or has he any way of using the existing lamps to give improved performance? These questions are not easy to answer, because the reflectorised-bulb technique does not seem to have a direct application to street lighting, but the same sort of question recurs in the consideration of many of the present-day advances in technology.

What is the ideal light source for street lighting? In a joint Paper with W. T. Souter in 1956, the author suggested a lamp giving 20,000 to 30,000 lumens of true white light at an efficiency of perhaps 50 lumens per watt and having a size 12in. long and 1in. diameter. We are getting closer to this ideal. The Xenon arc lamp can come near to it and although it is very expensive, it is being used increasingly on the Continent. The MBF type of lamp is at present shorter and fatter than the target, but the wider use of 400-W MBF lamps within the past three years or so may encourage the lamp technologists to produce an MBF lamp directly suitable for street lighting lanterns.

Reflector Materials

Silvered glass and enamelled steel have given place to polished metal and particularly to anodised aluminium although each has its own particular merits in the circumstances for which it is best suited. Anodised aluminium can be of several qualities, according to the purity of the metal and the type of process, so that the reflection factor and the surface polish may vary.

A comparatively recent development is the use of aluminium-magnesium alloys, with only a few per cent. of magnesium, which are harder and stronger than pure aluminium and which are not so dependent on the degree of purity of the aluminium. There are several new processes for chemical polishing which permit the production of bright mirrors without the need for mechanical polishing, and therefore permit the production of awkward shapes. These materials and processes are being used in lantern manufacture and they can provide some improved performance without corresponding increase in cost.

Metallised plastics are becoming familiar in many fields of activity: domestic, commercial, automobile and so on, but they have not yet been used to the author's knowledge in public lighting. It is suggested in several sections of this Paper that street lighting lanterns will continue the present trend of becoming larger and larger; if so, metallised plastics may well provide an accurate and effective means of light control.

Refractor Materials

The glass refractor has its proper place with a small, hot lamp and the plastics

refractor is properly used with a large, cool lamp. The use of heat-resisting glass is increasing following the use of high-wattage lamps and the economic pressure towards small refractors; this may be at some expense in light control.

Plastics materials show advances in stability and variety and we can have some confidence that there are more to come. The use of acrylics in properly designed sodium lanterns is over 10 years old and the various manufacturing processes, including extrusion, injection moulding, vacuum forming and so on are familiar to lantern designers, having been well exploited in lanterns for tubular fluorescent lamps. Street lighting presents very severe requirements to the plastics manufacturer because great stability of colour, size and shape and great durability and resistance to atmospheric contamination are necessary if the lantern is to have a long and trouble-free life; glass has admirable properties in this respect and plastics materials are naturally compared with glass. The clear acrylics have generally proved more serviceable than the clear polystyrenes, but the latter are showing advances which, together with their lower cost, may lead to their use with some kinds of light source.

All clear plastics materials are thermo-softening and any tendency to discolour or deteriorate is generally accentuated at higher temperatures. There are some new materials such as polypropylene or the polycarbonates, which have greater stiffness and higher softening temperatures; these are not water-white but it is not impossible that the street lighting engineer would accept a pale straw colour or a faint diffusion of light if these properties can be relied upon as stable. These are early days for these two materials and there is still much to learn about their properties and their potential uses. It may be that their high cost and their slightly unusual optical properties will be offset by using them in the form of a thin film. Patterns of moderate accuracy can be moulded on material only a few thousandths of an inch thick and this technique may be applied to several materials which are unsuitable in more bulky form.

Reference should be made to the techniques of continuous extrusion of plastics in the form of flat strips or troughs or tubes and carrying a prismatic pattern on one surface. The pattern can be formed more precisely in acrylic than in polystyrene materials. This technique carries the promise of a new range of light-controlling enclosures of adequate precision and modest cost.

Lantern Design

In the section on light sources, we saw a consistent record of improvements in performance and in suitability for purpose. It is very doubtful whether this same trend can be achieved in the photometric performance of lanterns and there is even a risk that the generous light output now available from modern lamps may be used as an excuse for the less careful conservation of light in modern lanterns.

In the darker days of the 1920's and 1930's, considerable care and expense were devoted to the concentration of the maximum proportion of the available light on to the carriageway; this technique involved highly directional reflectors and refractors and it gave some streakiness on the road surface, and some glare. With the development of larger and more powerful lamps, the technique of street lighting has included the objectives of uniformity, high surrounding brightness, and relative freedom from glare which have led to higher mounting, closer spacing and less critical control of light output. The advent of fluorescent lamps, which are of such a size as to be almost optically unmanageable in comparison with filament lamps, has led us to accept light distributions which are very wide in azimuth and are not sharply defined in elevation. The resulting glare

has been reduced by the large size of the lanterns and by the brightness of the surrounding buildings, but even the British readiness to accept conditions of glare is not unlimited and the present trend towards larger lamps will involve larger lanterns, which will give more precise optical control and will probably cost more.

There seems to be a trend towards cut-off lighting which may be a reaction to the glare from the high-angle distributions given by lanterns with sodium and fluorescent lamps. Continental practice has never accepted the British high-angle technique, though some of the more recent continental lanterns with tubular fluorescent lamps come close to it. Modern technology in road surfaces, which is a fundamental item in the study of trends in technology relating to street lighting, has produced non-reflecting surfaces which do not respond well to high-angle lighting. It is therefore likely that there will be a return to more careful optical control, particularly in the vertical sense, and that limits may be placed on the emission of light at angles near the horizontal, say between 80 degrees and 90 degrees. It is, however, very desirable that this reduction in light output should not lead to less exacting requirements for total light output; with the darker road surfaces now coming into use, we shall need the full benefit from all the improvements in light sources and light distribution if the standard of street lighting is to be maintained.

The current British Standard 1788 on street lighting lanterns makes little reference to their photometric performance, and the Code of Practice B.S.C.P.1004 gives little guidance on the appraisal of the characteristics of different light distributions and efficiencies. Yet there is a demand for some yardstick of performance, some criterion by which a lantern may be judged or similar lanterns may be compared. In the past it has been said that the variety of lamps and lanterns was so wide that any specification of overall performance would restrict improvement but the trend during the last few years towards a small number of preferred lamps, such as 140-W sodium (So/H), 400-W mercury (MA/H), 400-W fluorescent (MBF/U), or 80-W tubular fluorescent (MCF/U), each in similar lanterns, has made it not too difficult to find a reasonable performance level for each particular type. Unless this kind of technical discipline is accepted, there is a risk that the continuing improvements in the light sources may be nullified by degradation of lantern performance.

Lantern Construction

Progress in the engineering industry leads to progress in lantern construction; the days of the tinsmith and the purpose-made lantern are largely over. Mass production methods of high precision are adopted for most of the lanterns in current demand, partly because of the nation-wide uniformity in ideas about street lighting and partly because the economic pressure of the "lowest tender" has tended to eliminate those lanterns which are expensive to manufacture.

Although aluminium alloys are more expensive than cast-iron, the great technical developments in manufacturing processes have justified the use of aluminium. It is a good metal for die-casting and for machining and it has adequate ductility and mechanical strength. The usual alloy is LM.6, with about 13 per cent. of silicon, but there are others which may well find uses in public lighting equipment, such as LM.8 which has increased strength or LM.24 which is particularly suitable for pressure die-casting.

The use of aluminium is only one of the factors in the continuing trend towards reduction in weight. Plastics materials have replaced both glass and metal parts of some lanterns and this trend will undoubtedly continue, using plastics mould-

(Concluded on page 1300)

RECONSTRUCTION OF HILLS ROAD BRIDGE, CAMBRIDGE

From a Correspondent



Placing one of the prestressed beams

WITH the placing of the last three of a total of 37 prestressed beams, A. Monk and Co., Ltd., recently commenced the final stage in the reconstruction of Hills Road Bridge, Cambridge, for British Railways (Eastern Region). The work is being carried out in order to increase the headroom of the railway bridge, to relieve a road traffic bottleneck and to provide for a future dual carriageway.

The 78ft. long beams, placed at stages during the contract, and the demolition of the existing steel fabricated girder bridge weighing approximately 120 tons, have been undertaken without interference to rail traffic, and at all times, except for short periods during the night, two-way road traffic has been maintained.

The prestressed beams, each containing 80 wires of 0.276in. diameter, have been made by St. Ives Sand and Gravel Co., Ltd., to British Railways Specification. This

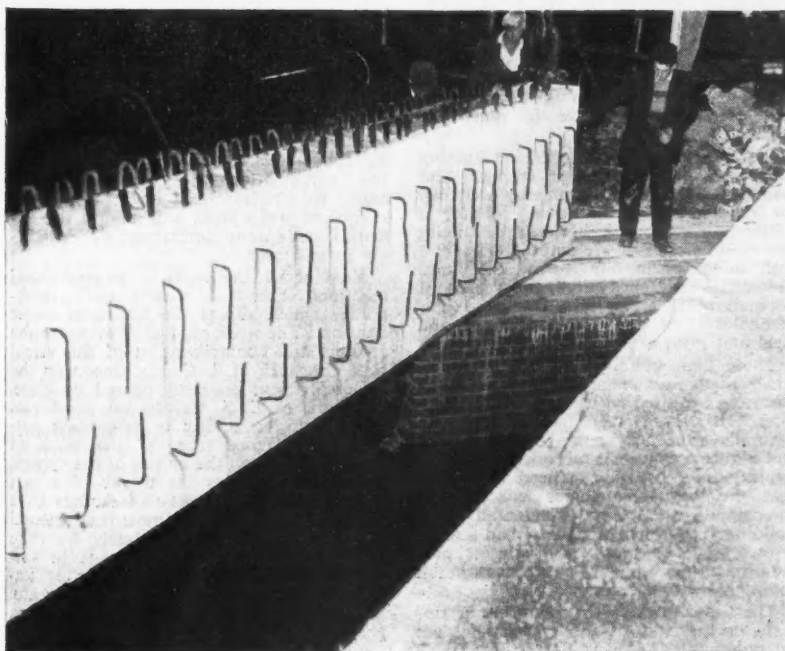
involved the use of Sealithore cement, and casting was necessary during the winter months to allow for placing of the first 12 beams in February.

Stressing was up to 155,000lb./sq. in. and the steam heating of aggregates and steam curing were also necessary. Concrete was placed in the moulds at a temperature of between 70 and 75 degrees. A further added difficulty was the transportation of long heavy beams from St. Ives to Cambridge. This necessitated a detour of several miles to avoid a narrow stone bridge where one-way traffic operates, and road intersections which could not be negotiated with such loads.

The first stage of reconstruction, which terminated in the placing of 12 beams in February of this year, included the construction of a reinforced concrete retaining wall, the foundations of which caused considerable delay due to ground conditions. The original design was amended to allow for a cellular concrete base constructed in cofferdams 14ft. below the original depth of foundation. The length of wall was 824ft. varying in height between 5ft. and 21ft. The existing brick bridge abutments, extending 33ft., were themselves strengthened by underpinning and provided with new reinforced concrete sill beams to take the prestressed beams.

The first stage completed the widened portion of the bridge to which road traffic was later transferred, before the demolition of the previous steel bridge. A temporary footbridge was also erected alongside the widened portion to allow full use of this area by road traffic, and an 80ft. pipe bridge to carry a temporary water main alongside the old bridge, prior to demolition.

Mobile road cranes of 25-ton capacity have been used for all lifting operations. These have been hired from Messrs. Pickfords and T. C. Stewart and Co., Ltd. The prestressing and post-stressing of the beams in position has been by the P.S.C. system.



Beam is lowered into position

FIRE RESEARCH, 1959

Advance in Modelling of Fires

IN 1959 Fire Brigades in the United Kingdom attended about 240,000 fires which cost some £44m. This record figure is given in the report* of the Director of Fire Research, now published. Present indications are that the number of fires for 1960 will not be so high.

Almost half of last year's fires were of the heath or grassland variety due to the exceptionally dry summer, compared with an annual average of 28,000 for all similar types of fire over the past five years. At present it is not possible to quote precisely what increase there has been in building fires but the latest indications are that they have risen by 20 per cent.

Growth of Fire

A significant advance has been made in the modelling of building fires. The report shows how the rate of burning and the maximum temperature in fires is affected by the windows openings for burning compartments of various sizes. The flame height and radiation from windows is shown to be amenable to scaling within the limits of the experiments that have been carried out. Eight countries abroad have combined to extend this work of compartments of various shapes and with different window openings.

Some of the results are already being used in the drafting of Building Regulations for Scotland and it seems likely that they will provide a scientific background

**Report of the Fire Research Board with the Report of the Director of Fire Research, 1959. Published for D.S.I.R. by H.M.S.O., price 5s., by post 5s. 7d. (U.S.A. 90 cents).*

(Concluded from page 1298)

ings instead of fabricated parts to reduce assembly time. The new technology of adhesives will also affect lantern design and construction, extending far beyond the assembly of acrylic parts with which we are already familiar. We can look forward to reinforced plastics, such as those with glass fibre or nylon fibres embedded in the plastics matrix. Some such materials were tried and discarded several years ago, but there have been some very interesting designs in recent years and the trend seems very likely to continue. The use of glass-reinforced plastics for roofing and for the hulls of boats has given a great fillip to the technologies of this material and its full influence has not yet been felt in public lighting.

The increasing cost of maintenance is a trend which profoundly affects the design and construction of lanterns. Reference may be made to the "Guidance Notes for Purchasers of Street Lighting Lanterns" recently issued by the Electric Light Fittings Association; this booklet indicates some of the practical ways in which design, materials and workmanship can ensure long life and can provide the conditions for long intervals between visits for maintenance. Lanterns designed for easy maintenance and for long-period reliability may not be cheapest in first cost but they are almost certain to be cheaper in total cost over their life. The quality of such a lantern cannot easily be defined in a general mandatory specification and the E.L.F.A. Notes were prepared to supplement the current British Standard 1788 by drawing attention to certain aspects of lantern construction which call for discrimination during appraisal. The E.L.F.A. Notes cover many points on which recent developments have affected the techniques involved in street lighting lanterns, and there is no need to go over the same ground in this

for the fire grading of buildings within the next few years.

Roof Vent Installations

The joint programme with Colt Ventilation, Ltd., to determine principles for the design of roof vent installations has been extended to deal with the effect of roof venting on fires. Two models have been used. They represent one bay of a factory separated from the rest of the building by a fire curtain, extending part of the way from the ceiling to the floor. The first experiment has been completed and a theory evolved which can be used to calculate the depth of curtain and area of vent required to prevent hot gas being discharged beneath the curtain when a factory bay contains a fire which is either localised or spreading slowly.

The second study has concerned the effect of opening a vent on the speed at which a fire progresses. Experiments have been made to measure the rate of burning of wooden cribs inside the model. Opening a vent has been shown to increase the rate of burning if this is restricted by the air flow, but it also releases smoke and by increasing the efficiency of burning, improves visibility and assists fire-fighting. Further experiments are now being carried out to find the influence of roof vents on the rate at which fires spread through combustible material distributed over the whole floor area of a factory bay.

Flame-retardant Treatments

For some years there has been doubt as to the permanence of flame-retardant treatments for building materials. Recent tests at the Fire Research Station have helped to allay fears on this score. A

Columns

Although many modern lanterns are large and have appreciable wind resistance, they are not of relatively great weight. Many technologies in general engineering have contributed to the recent improvements in street lighting columns, which the author will not attempt to discuss in any detail, and the more slender and elegant designs now available are welcomed by those concerned with the fine arts as well as those who have to erect the columns.

New problems arise when street lighting techniques call for greater strength and resilience. These problems may well call for new materials or designs or for a different compromise between aesthetics and economics. We are entering an age of high buildings in our towns and cities. This arises only partly from the density of population; it arises also from the new technologies of building in concrete and steel and glass and aluminium.

These high buildings are separated by wider roads and open spaces than in the past, and are sited with more careful planning. In these surroundings, we can naturally expect a trend towards higher and perhaps somewhat more widely spaced lighting columns and we need not doubt that the new technologies will produce the columns we require. Incidentally, high buildings require high cranes, and similar telescopic techniques will doubtless provide the cranes and tower wagons required for high lighting columns.

The trend towards the mounting of lanterns on the front of buildings rather than on columns is perhaps one in technique rather than technology. Modern buildings do not encourage this technique, but some

number of treated surfaces have been exposed in offices for up to four years. Only one—a silicate-painted surface deteriorated after two years and oddly enough another kind of paint was found to improve with age.

Fire Separation Walls

Recent furnace tests on load-bearing concrete block walls have shown that their present ratings in the by-law schedules are conservative except for thin hollow blocks with a flint gravel aggregate.

One form of perforated clay brick has been shown to give adequate fire resistance for multi-storey buildings; others are suitable for two-storey houses.

GROWING POPULARITY OF "SANDWICH" COURSES

More than 10,000 students are expected to enrol this month for "Sandwich" courses at colleges of advanced technology and technical colleges in England and Wales compared with just over 2,000 five years ago.

This increase in the popularity of sandwich courses is highlighted in a pamphlet* published by the Ministry of Education which shows that the colleges will offer over 330 sandwich courses in the session beginning in September compared with just under 300 last year and about 100 five years ago. The subjects covered by the courses range from civil, mechanical and electrical engineering, to newer branches of study such as electronics, rubber technology and business studies.

The "Sandwich" idea is spreading from the professional level. The new list contains a number of courses at the technician level. A separate section gives details of over 40 block release courses as compared with 25 in last year's list.

"Sandwich Courses," List 182 (1960). Obtainable from H.M. Stationery Office, price 4s. net.

modern traffic conditions, particularly high-density traffic, seem to call for it.

This Paper has been largely concerned with technologies in engineering. The future of street lighting will be affected by advances in many other technologies such as chemistry, mathematics, traffic engineering and the humanities. The chemist will evolve new materials, new paints, new road surfaces and the mathematician will increasingly apply the methods of statistics and of polar geometry, using electronic calculators for the analysis of our problems. The motor car is a prominent feature of the changing scene; on the one hand, it becomes of less recognisable shape each year, and, on the other, its headlamps improve in effectiveness. The combination of glare-free dipped beams with reflectorised surfaces on signs, kerbs and white lines will modify the demands made upon permanent street lighting installations.

Most of all, the study of human visual reactions is both a science and a technology which affects the future of street lighting. The work of H. C. Weston on the analysis and comprehension of the visual task, the work of R. G. Hopkinson on the discomfort and disability caused by glare, the work of E. S. Calvert on parafoveal vision and recognition of brightness patterns, and, more recently, the work of J. M. Waldram on the nature of the critical detail which guides the driver of a car; these and other scientific researches have been concerned with the most fundamental problem of street lighting, namely, what the road user actually sees or needs to see. His perception may be conscious or unconscious, spontaneous or deliberate. During the past 20 years there have been great advances in our understanding of the human problem in vision at night, and these must be carefully examined in determining the policy for the future.

International Construction**FRENCH GROUP DEVELOP MONORAIL PROTOTYPE****From a Correspondent**

BEARING in mind the gradual paralysis of surface transport by the growth of traffic and the inadequacy of the highway system, particularly in urban areas, a formidable group of French industrial companies under the direction of Société Anonyme Française d'Etudes de Gestion et d'Entreprise, a subsidiary of Société Lyonnais des Eaux et de l'Eclairage, have recently designed and developed a prototype suspended overhead light railway, which has been placed in operation over a mile-long track at Chateaufort-sur-Loire.

Important technical support for the scheme was provided by Régie Autonome des Transports Parisiens which operates the Paris public transportation system and the Société Nationale des Chemins de Fer Français.

As a result of investigations conducted over a number of years, the French group have rejected as being unsuitable the type of monorail in which the vehicles are supported by the running track since these tend to become unstable and present difficulties from the point of view of negotiating curves of small radius and of designing and providing efficient and safe switching to branch lines. Instead, the group favour the type in which the vehicles are suspended from the track.

Most Economical

Basing their studies on the latter suspended type, a system incorporating a number of remarkable features has been evolved. The track, in the shape of a steel box girder, is considered to be the most economical available and to be appropriate for contributing to the transverse stability of the vehicles moving at high speed. Its rigidity is also considered to lend itself to the creation of an aesthetic structure which meets town planning requirements. Supports can be spaced at intervals of 30 m. to give a double overhead track above existing roads. The ground space taken up by the circular based supports is only .80 m. in diameter and may be easily accommodated in existing median separating two lanes of traffic or alongside existing roads.

Economy of structure of such a system is of vital importance since the superstructure represents rather more than 50 per cent. of the total cost. In considering the technical aspect of the scheme consideration was given to a number of essentials, including the adaptation of the superstructure to existing streets or avenues without disturbing surface traffic, the minimum overall dimensions of the supports and of the hollow box-type track girders and the flexibility of lay-out for either double tracks or two separate tracks.

It was also considered necessary that the track beam be easily adapted for use as the shell of a single or double track tunnel, should such an underground solution to the traffic problem become necessary. The geometry of the track in its plan and its longitudinal profile was similar to that for a railway track.

Box Girder

Designed to accommodate and guide the motor-bogie that runs within it and to allow for the passage of the sling connecting the bogie to the suspended vehicle, the box girder has a square 1.30 m. by 1.30 m. internal section, its lower horizontal side having an opening of 0.50 m. which is continuous all along the beam. It is built of steel plates of constant thickness forming a double longitudinal wall

with longitudinal wall stiffeners. Every 3 m. the two walls are connected by transverse diaphragms welded to both walls. The width of the box girder wall varies between 0.25 m. and 0.29 m. and the double internal running track is made of thicker metal plates also welded to the vertical and horizontal plates.

With a normal span of 30 m. and external dimensions of 1.85 m. by 1.97 m., the box girder of the prototype system contains 800kg. of steel per metre. It can, however, be reinforced without increasing its external dimensions so as to allow spans of more than 30 m. For subsequent constructions it is hoped to achieve reduction of the transversal cross-section of the bogie and consequently of the girder and to lighten considerably the

tive weight of the beam. It is considered that the span could be increased to 20 m. without modifying overall measurements, by using weldable high tensile steel and a prestressed concrete filling, the prestressing cables taking the dead load of the beam.

The supports are made with T or single columns according to whether they serve double or single tracks, their cross-sections being kept to a minimum at ground level.

Used particularly for erection on the central median between double-track surface roads, the T columns are given a height sufficient to clear at least 4.50 m. between the level of the road or pavement and the bottom of the suspended vehicle. The columns at Chateaufort-sur-Loire consist of cylindrical steel tubes of 0.80 m. diameter and 28mm. wall thickness, the



Close-up of the Chateaufort-sur-Loire prototype monorail, showing gantry type supports and box-girder type track

quantity of steel for the girder.

On curves, the structure of the girder remains the same, though its standard span should theoretically be reduced to 25 m. between supports. Alternatives have been studied in respect of the material used for the construction of the box girder. These have included prestressed concrete and composite materials such as prestressed steel, with cables, and prestressed concrete. The use of weldable high tensile steels to reduce the weight of the girder is also being studied.

Separate Beams

For spans of up to 15 m. or when the overall dimensions of the box girder are judged to be at variance with the width of the street, two separate L beams may be used to form the running track and the vertical guiding surface for the bogie wheels, each beam, with a double wall, being made up of welded metal sheets. The overall height of this beam could be reduced to 0.60 m. (compared with 1.97 m. for the standard box girders) and the weight per average metal would be about 460kg. for the two beams. This type of structure would be very economical due to the easy construction and the low rela-

lower part of which is embedded in a foundation block of reinforced concrete. Its welded steel T-shaped top supports the box girders. The inside of the column is filled with concrete reinforced with longitudinal steel bars. The box girders are fixed onto the T support by special gussets welded onto their end pieces and by threaded rods securely set in the supporting columns.

Expansion Joints

The expansion joints of the girders and of the power-feeding rails are placed on special devices fitted to the supports. An average complete double T support weighs about 12 tons. The dimensions of the foundation concrete block for the column, which is completely buried, depend on the nature of the subsoil and on the weight carried.

For a single track, the support is shaped like an inverted L and the foundations retain characteristics similar to those of the T-shaped column.

The need for a gantry with two supporting legs and a cross-piece supporting one or more girders becomes apparent especially for use across fairly narrow streets

(Concluded on page 1302)

International Construction**£1M. DEVELOPMENT GRANTS FOR TANGANYIKA**

TANGANYIKA will benefit by more than £1m. from six grants made under the Colonial Development and Welfare Act in July.

Altogether 90 grants—including 17 for research—were approved during July, making available £4,174,664 for schemes to benefit Britain's overseas territories.

Largest of the six grants (totalling £1,010,973) for Tanganyika was £518,300 for forestry development including timber enumeration surveys, natural regeneration projects, extension of 12 softwood plantations, mainly with pine, and the planting of hardwoods, mainly Burma teak, at six centres.

During the next four years, £101,540 of the £518,300 grant is to be spent on building quarters, offices, store rooms and other buildings, while £94,385 will be spent on 150 miles of access roads, 235 miles of plantation or internal forest roads, 382 miles of cleared firelines, the erection of 20 fire lookout towers, a new tree nursery, and piped water supplies to nurseries and stations. Purchase of plant, vehicles and equipment will take up £107,710 of the total grant.

The other grants to Tanganyika include £249,000 for improvements to the Mikumi/Msolwa road; £175,000 for the Land Bank

which provides long-term finance for agricultural enterprise, its facilities being open to all races; £33,878 for increasing African agricultural productivity; £23,395 for the establishment of a topographical survey section to supplement the work of the Directorate of Overseas Surveys; and £1,000 for equipment for research in clinical virology.

British Guiana

Grants totalling £480,774 were approved during July for British Guiana, including £182,536 for the continuation and expansion of geological surveys; £101,250 for improvements to Bartica/Potaro road and £67,500 for a 32-mile extension of the road from Parika along the east bank of the Essequibo River to a point opposite Bartica.

Gambia Road

Road developments account for £774,160 of the total grants, including £184,800 for the construction of 35 miles of the Brikama-Mansakonko road in the Gambia.

Grants made during July for educational facilities totalled £654,834, including £140,000 for additional accommodation for St. Michael's Training College, Malta, and £137,027 for the construction of a Technical Institute in Fiji.

AUSTRALIAN REFINERY TENDERS INVITED

Tenders have been invited in the United States for the construction of South Australia's first oil refinery. The Vacuum Oil Co. said that four American companies had been invited to submit contract bids. They are the Bechtel Corporation, Foster Wheeler Co., M. W. Kellogg Co., and Fluor Corporation.

The refinery is to be built at Hallett's Cove, south of Adelaide, at a cost, of about £A16m. It is expected to begin operation in 1962.

AERIAL SURVEY OF BRITISH GUIANA

A new type of aerial camera that can photograph an area of 593 sq. miles from a height of 50,000ft. in a single exposure on a negative 9in. square is to be used in a contract awarded by the Crown Agents for Oversea Governments and Administrations to Fairey Air Surveys, Ltd., of White Waltham, Berkshire. The contract covers the aerial photography of 26,000 square miles of British Guiana. The administering body will be the Directorate of Overseas Surveys.

EGYPTIAN STREET LIGHTING ORDER

A new, specially designed four-arm Kuwait lantern is among £5,000 of Siemens Edison Kuwait street lighting fittings now being shipped to Egypt. The order, placed with Lamps and Lighting Department, A.E.I. Radio and Electronic Components Division, covers the exterior lighting of the new hydro-electric power station near Aswan, in Egypt.

NEWFOUNDLAND OIL REFINERY

The Golden Eagle Company of Canada have awarded a contract to South Western Engineering, of Los Angeles, for building an oil refinery near St. Johns, Newfoundland. The refinery will have a capacity of 7,500 barrels a day.

BRIGHTER MELBOURNE STREET LIGHTING

First steps in a progressive programme to instal improved street lighting within the city of Melbourne have been completed over a two-mile section in St. Kilda Road, linking Prices Bridge to High Street, Prahan.

The installation which was completed in six months uses 463 Atlas "Alpha Three" mercury fluorescent lanterns, manufactured by Thorn Electrical Industries, Ltd. (700 lanterns have been ordered by the Melbourne City Council for this development programme.)

RUSSIANS TO BUILD ALEXANDRIA DOCKYARD

Egypt has signed an agreement with the U.S.S.R. for the construction of a £E6m. dockyard at Alexandria. To be built in three stages, it will take eight years to complete.

A British firm is understood to have been among several European concerns which applied for the contract.

£10M. LOAN FOR ISRAEL HARBOUR

A 25-year loan to Israel of \$27½m. (nearly £10m.) has been agreed by the International Bank for Reconstruction and Development, for the construction of a new harbour at Ashdod on the Mediterranean coast.

The cost of the harbour is estimated at \$46m. It is to have an initial capacity of 950,000 tons.

NYASALAND HYDRO-ELECTRIC SCHEME

The Federal Assembly has been asked to vote £100,000 for immediate planning to be undertaken for the Nkula Falls hydro-electric scheme, Nyasaland. The scheme, which will cost about £3m., has already been approved in principle, and special finance arrangements are likely to be made.

NYASALAND CONTRACT FOR LAING

JOHN LAING AND SON (Rhodesia), LTD., have been awarded a contract by the Nyasaland Government for development of the Northern Province area and Kota Kota.

Initial work on the contract, costing about £450,000 includes the erection of police buildings, clinics, a hospital at Fort Hill, European and African housing, district headquarters, and ancillary works. Centres at which work will commence immediately are Karonga, Kota Kota, Fort Hill, Mzuzu and Nkata Bay. Within the next three months work will commence on the remaining centres at Rumpi, Deep Bay, Kaporo and Chisanga.

VICTORIA'S RAIL WORKS PROGRAMME

This financial year £A7,550,000 is to be spent on railway works in Victoria. The programme will include preliminary planning and site investigation for Melbourne's underground railway.

About £A600,000 will be spent on new diesel and electric locomotives, almost £A1m., on new electric trains and a similar amount for vans and wagons. A big proportion of expenditure on the works programme will go to the conversion of the line from Melbourne to Albury to standard track. Work on this project is now well advanced.

PANAMA ROAD IMPROVEMENTS**\$7m. World Bank Loan**

The World Bank has approved a loan equivalent to \$7.2m. to Panama for road construction and improvement. Ten new feeder roads, having a total length of 187 miles are to be built and eight existing roads, total 86 miles, linking the new roads with main highways, will be paved.

Total cost of the road project is estimated at the equivalent of \$14½m.

(Concluded from page 1301)

without a median. The legs of the gantry are then supported against the kerbs of the two pavements, clearing the necessary street traffic gauge. The gantry structure can be welded or bolted and formed with standard rolled iron of simple shape. This solution for the same type of subsoil is somewhat more economical than that of the T support.

Grades of Steel

For constructing the box girders and supports in France, grades of steel normal to structural steel work in that country have been used, especially Martin A 37 T, with a normal tensile stress of 12-13 kg./mm.², and A 42 T with a normal tensile stress of 14 kg./mm.². The weldable high-tensile steels considered would be of the type AC-55 (36 kg./mm.² yield point), the allowable tensile stress point being 18 kg./mm.².

Corrosion protection for the inside of the closed box girders is provided by a special coating prepared from asphaltic compounds.

Inclusive of all installations, the cost of a suspended overhead light railway has been calculated at about 12 to 15m. new French francs (NF) per kilometre, compared with the cost of a conventional underground railway which is put at 70 to 100m. NF per kilometre, depending on whether it is constructed by "cut and cover" methods or by tunnelling.

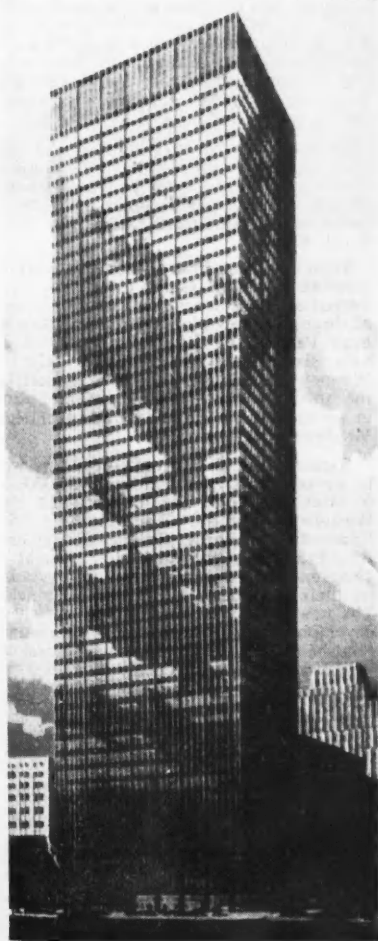
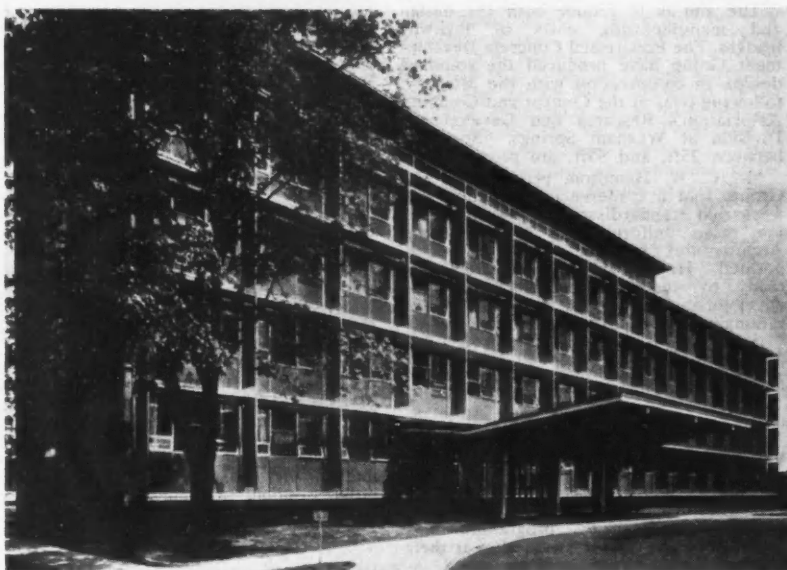
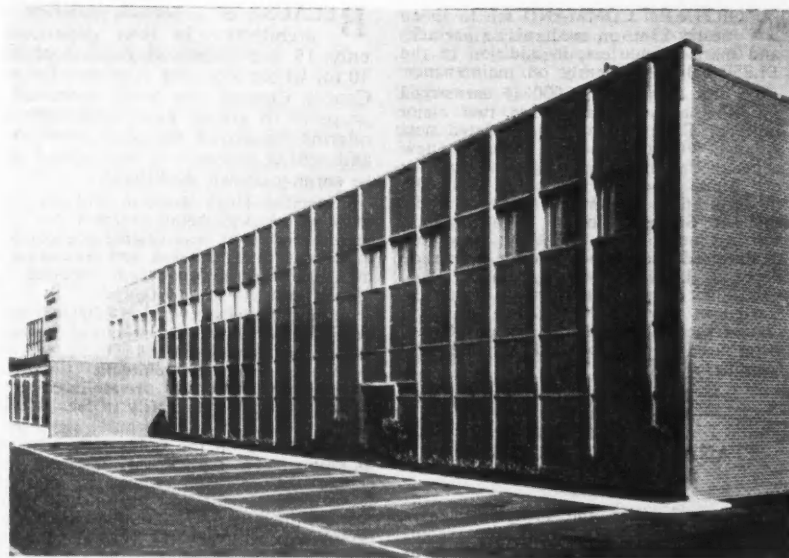
The structure at Chateaufort-sur-Loire has been designed and built by Compagnie Française d'Entreprises et Etablissements Baudin Chateaufort. The general and detail arrangement of the French overhead suspended rapid transit are covered by patents registered in the major countries of the world.

International Construction

ARCHITECTURAL USES OF STAINLESS STEEL

A LECTURE entitled "Recent Developments in the Architectural Uses of Stainless Steel in the U.S.A.", supported by films and slides, was recently given at the R.I.B.A. by Professor George Edson Danforth, director of the Department of Architecture at the Illinois Institute of Technology.

Among the important buildings referred to in the lecture, illustrated on this page are (below) the Union Carbide Building, New York; (top right) White Castle General Offices Building, Columbus, Ohio; (centre right) Pottstown Hospital, Pottstown, Pennsylvania; and (bottom right) National Bank of Detroit. All the buildings incorporate stainless steel cladding.



£3M. BARRACKS IMPROVEMENTS SCHEME

NORTHERN COMMAND are to spend nearly £3m. on modernising barracks and married quarters, in addition to the £1,250,000 spent yearly on maintenance.

Of the £3m., £1,136,000 is earmarked for new accommodation for two major units at Catterick, to be completed next August. Other schemes include: new accommodation for an engineer regiment at Ripon, begun in June, £640,000; modernisation of permanent accommodation at Strensall for a brigade depot, starting next April, £194,000; new and modernised accommodation for a brigade depot at Leicester, starting March, 1963, £300,000; married quarters at Catterick, started in April, £420,000; and huts and improvements at All Arms Training Camp, Otterburn, Northumberland, starting next March, £245,000.

STANDARDISED BEAMS FOR BRIDGE BUILDING

Local authorities and bridge designers throughout the country are being recommended by the Ministry of Transport to adopt a standard type of precast, prestressed concrete beam for bridge construction.

The aim is to reduce both the design and manufacturing costs of highway bridges. The Prestressed Concrete Development Group have produced the standard design, in co-operation with the Ministry, following tests at the Cement and Concrete Association's Research and Development Division at Wexham Springs. Spans of between 25ft. and 55ft. are provided for.

Mr. C. W. Hamilton, president of the Group, told a conference in London this week that standardisation of beams would not mean uniformity in bridge design. Architectural features could be incorporated. He said that 45 firms were now ready to undertake manufacture. The development was not a new one, but a rationalisation of existing practice.

Details of the beam design will be given in next week's issue of *The Contract Journal*.

VICKERS TRACTOR PRODUCTION

Vickers - Armstrongs (Tractors), Ltd., have informed their dealers that when the present manufacturing programme has been completed tractor production at their Scotswood plant will be discontinued.

Markets for the crawler-type tractor have narrowed, and Vickers feel that the future does not hold sufficient promise to justify their continuing production of these tractors. The heavy costs of development and production of first-class equipment require a higher level of sales than has been achieved if manufacturing profit is to be comparable with that of other products.

Vickers will continue to guarantee full service and parts supply during the entire working lives of all their tractors, both those at present in the field and those still to be built and delivered.

The reorganisation and the limiting of material supplies are bound to affect the production labour force later in the year. In the meantime, Vickers will employ as many as possible in their other works in the area and, indeed, have absorbed a number of staff and workpeople already. Every endeavour will be made by the Vickers Group to avoid redundancy.

Vickers Onions Not Affected

The range of Vickers Onions earth-moving equipment produced at the Group's Bilston works is not affected by the decision. Production at, and sales from, those works are increasing, and normal development of new products will continue.

LANARK C.C. NOT TO USE PRIVATE ARCHITECTS

BECAUSE of a serious shortage of architects—in their department only 19 are employed instead of the 30 for whom provision is made—Lanark County Council this week approved a proposal to attract more architects by offering improved financial conditions and rented houses. It was agreed not to employ private architects.

Councillor Hugh Brannan said that the work which was being "farmed out" to private architects was costing the council 7 per cent. in commission, and the council's own architectural department operated on 3½ per cent.

At present, work worth £4,500,000 was being done by the architectural department, and work worth £8,500,000 was in the hands of private architects. Commissions in the hands of private architects would involve the authority in fees in the region of £600,000.

Commenting on the Council decision, a spokesman of the Royal Institute of British Architects said that a number of councils had in the past changed to their own architects, while others had gone over from their own to outside firms, depending on local circumstances and the amount of work in hand. It was impossible to compare rates of commission, as those charged by councils did not include all the overheads which the private architects had to consider.

M.1 — RECONSTRUCTION OF GRASSED HARD SHOULDERS

Work began this week on the reconstruction of the grassed hard shoulders on the M.1 Motorway. At the same time, these hard shoulders will be widened from 8ft. to 10ft. The work will be carried out by the contractors for this part of the motorway, John Laing and Son, Ltd.

During last winter, when the motorway was first opened, the grassed shoulders received much heavier usage than was expected. They suffered considerable damage in consequence. Experiments were carried out earlier this year to determine the best method of reconstructing them.

Four teams of machines will be used, two working northwards from north of Luton and two working north of Newport Pagnell. At the places where work is in progress, about two miles of the slow lane on both carriageways will be out of action.

FITTING THE JOB TO THE WORKER

Three hundred senior people from nearly 200 industrial firms and organisations will meet in London this month at the Ergonomics Conference organised by the Department of Scientific and Industrial Research. The three-day conference will be opened by Lord Hailsham, Minister for Science, on Tuesday, September 27.

Ergonomics, the application of science to the problem of fitting the job to the worker, is becoming increasingly important in industry today, and the delegates will come from such major industries as chemicals, engineering, electrical, steel, motor and transport, and from the trade unions, universities, research associations and Government departments.

TYNE TUNNEL DRAFT DOCUMENT APPROVED

Northumberland and Durham Joint Tunnel Committee last week approved the draft contract documents for the £13m. Tyne tunnel, work on which is expected to start next spring.

The consulting engineers are Mott, Hay and Anderson, 9 Iddesleigh House, London, S.W.1.

Late Construction News

IRAQ AIRPORT TENDERS.—Tenders are about to be invited internationally for the construction of a new airport about 11 miles from Baghdad. The cost of the work, for which the consulting engineers are Sir Alexander Gibb and Partners, London, will be approximately £11½m. Included in the contract will be the building of a 3,000-metre runway, taxiways, aprons, electrical distribution and a complete air-field lighting system. The scheme is promoted by the Ministry of Communications, Iraq Government.

AYLESBURY FACTORY.—John Laing and Son, Ltd., have been awarded a contract for the erection of a factory at Gatehouse estate, Aylesbury, for the New Holland Machine Co., Ltd. Estimated cost of the scheme is £310,000. The architects are Raymond White and Ridley, Temple Square, Aylesbury.

£715,000 SEWAGE WORKS.—Salisbury City Council have accepted the £715,226 tender of Mears Bros., Ltd., London, S.E.26, for the construction of a new sewage disposal works at Peter's Finger. Eight Tenders were received ranging up to £999,297. Work is about to commence.

"C.J." EXTENSIONS.—The Contract Journal Co., Ltd., propose to place a contract with Thomas and Edge, Ltd., 52 Macbean Street, London, S.E.18, for extensions to offices and works at 32 Southwark Bridge Road, London, S.E.1. The architects are Yates, Cook and Darbyshire, 43 Great Marlborough Street, London, W.1.

BRADFORD REDEVELOPMENT.—A contract worth £638,000 has been awarded by Bradford City Council to George Wimpey and Co., Ltd., for slum clearance and redevelopment near the city centre. The scheme comprises 13 five-storey blocks of flats, four eight-storey blocks and one four-storey block.

LEEDS OFFICE BLOCK.—A multi-storey office block is to be built at Eastgate, Leeds, for the National Deposit Friendly Society, by Higgs and Hill, Ltd., Leeds. The building is estimated to cost about £200,000. Plans are by Ansell and Bailey, 12 Gray's Inn Square, London, W.C.1.

BRISTOL RAIL DEPOT.—A £500,000 contract has been placed with Kyle Stewart (Contractors), Ltd., by British Railways (Western Region) for building a diesel locomotive maintenance depot at Bath Road, Bristol.

DUNFERMLINE FLATS SCHEME.—Dunfermline Dean of Guild Court have approved a £456,000 scheme for the erection of three 12-storey blocks of flats at Broomhead Park. The scheme is expected to take six months to complete. George Wimpey and Co., Ltd., are to undertake the work and have drawn up the plans in co-operation with the burgh architect, Mr. Leonard Howarth.

BARBER-GREENE FACTORY.—Tenders will be invited shortly for building a 70,000 sq. ft. factory and office building at the Western Industrial Estate, Bury St. Edmunds, for Barber-Greene Olding and Co., Ltd. The company have bought a 19-acre site on the estate and are to transfer their headquarters there from Hatfield. The new factory is the first stage of their development proposals. Fuller, Hall and Foulsham, 212 High Holborn, London, W.C.1, are the architects.

ROADS AND SEWERS.—Swansea B.C. have accepted the tender of T. Gallagher and Son, Ltd., 4 Oaklands Drive, Bridgend, Glam., at £65,686, for road and sewer works on the Sketty Park housing site, part 2. Work will commence in November.

WILTS. FACTORY EXTENSION.—Richard Costain (Construction), Ltd., Bristol, have just commenced work on a £90,000 extension to the factory of George Spencer, Moulton and Co., Ltd., Bradford-on-Avon. Plans are by Thurlow, Lucas and Janes, Gower House, Place Road, Melksham.

PROGRESS ON LONDON TRANSPORT'S METROPOLITAN LINE

Rickmansworth Road Bridge Takes Shape

WORK on London Transport's new bridge to carry additional tracks over a widened Rickmansworth Road, between Northwood and Northwood Hills stations on the Metropolitan Line, is now well in hand.

The concrete abutments for the section which will carry the new tracks for the fast trains have been completed and the steel lattice girders are being erected. The three girders of the complete bridge are each 163ft. in length, that in the centre weighing 170 tons and the two outer girders 110 tons each. The bridge was designed and fabricated before the war by London Transport's engineers.

When the first span has been completed,

towards the end of the year, trains will be diverted over it and the second half of the bridge, to carry the local tracks, will be built alongside. The present narrow brick arch bridge, which is in effect a short tunnel through the railway embankment, will be demolished, enabling the roadway to be widened to modern standards. The bridge is built on the considerable skew of 26 degrees, and the clear width beneath the finished bridge available for the roadway and footpath will be 60ft. The roadwork itself will be carried out under the auspices of the Middlesex County Council.

The bridgework is being carried out by the Fairfield Shipbuilding and Engineering Co., Ltd., Chepstow, Mon.



This view shows the bridge from the west side, with one of the 110-ton outer girders in the foreground and the 170-ton centre girder behind it

INTERNATIONAL UNION OF ARCHITECTS' CONGRESS

THE theme of the 1961 Congress of the International Union of Architects, to be held in London from July 3 to 7 will be "New Materials and Techniques—Their Impact on Architecture." The principal events and activities during the period of the Congress will include: (a) a meeting of the Assembly (the Council) of the I.U.A. on June 30 and July 1; (b) plenary and working sessions of the Congress from July 3 to 7; and (c) an international exhibition.

Schools of architecture all over the world will be participating in an international competition during the coming months, and their designs will be exhibited at the Congress.

An important exhibition of contemporary British Architecture entitled "Architecture Today," organised by the Arts Council of Great Britain and the R.I.B.A., will be held at the Arts Council Gallery so as to coincide with the I.U.A. Congress.

EXHIBITION DATES

To the Editor of "The Contract Journal."

Sir,—The dates of the Building and Public Works Exhibition at Castle Bromwich, Birmingham, were decided on very early in the year, long before the Crystal Palace Show was first mooted. It will also be noted in our brochures and advertisements that we are being supported by the Midland Federation of Building Trades Employers, not the National Federation as stated by your correspondent.

Many of the leading companies prefer to exhibit at these regional events in preference to London, due to two very important factors—firstly they consider that far too many exhibitions are held in London, with the result that the main regions are neglected (this point was proved at our recent highly successful exhibition at Chester-le-Street)—secondly, the cost to the exhibitor is much less; in many cases this amounts to quite a considerable sum, and the opportunity of doing a large volume of business is equally on a par with London.

Yours, etc.,

J. SANDLER,
Official Organiser.

Advertising Publications Co., Ltd.,
20 John Street, Sunderland.

COFFIN-SHAPED HALF-TRUSSES USED IN LONDON

BUILDING

A STRESS skinned plywood ceiling, comprising 10 coffin-shaped half-trusses and 18 triangular soffit infills, is a feature of the new General Dental Council Chamber building in Wimpole Mews, London, W.1.

The half-trusses are set at angles to form a sequence of five pyramidal shapes, and because of their coffin shape, each meets its opposing truss at the apex. The trusses are fixed at these five central high points by specially made rigging screws. Similarly, rigging screws secure each adjacent half at the four central low points of meeting. The half-trusses are supported at either side of the building on B.C. Pine cradles fixed by bolts to steel plates which are themselves embedded into the concrete beams that form the perimeter of the building.

Samuel Elliott and Sons (Reading), Ltd., were responsible for fabricating the half-trusses which were made from ply glued

onto frames of 2½in. B.C. Pine with Casca-mite "One Shot" resin glue manufactured by Leicester, Lovell and Co., Ltd. The face sides of the trusses, forming the ceiling of the building, are of highly polished Chestnut veneered ply. The half-trusses, each of which is infilled with Dufaylite, are 31ft. 8in. long and have a maximum and minimum width of 5ft. 6½in. and 2ft. 9½in., respectively. The two end half-trusses are 4½in. thick and the remaining eight 3½in. thick. Each half-truss has a surface area of 131 super. ft.

Plates of 7½in. by 3in. B.C. Pine run along all chamfered edges of the trusses to receive the joists and purlins that support the 18 tapered soffit infills of Chestnut covered ply.

The half-trusses and soffit infills were delivered to Wimpole Mews on an articulated lorry and hoisted into position by a 22RB 85ft. jib single boom crane. The narrowness of the Mews complicated this operation but the work was completed

in one day and without mishap.

The residents of the Mews have taken a keen interest in the whole of this project—an interest stimulated, no doubt, by the contractors, Marshall Andrew and Co., Ltd., who took the precaution of sending to all residents in advance by letter, details of each stage of the work as it progressed.

The architects for the building were Sir Hugh Casson, Neville Conder and Partners (associate in charge, Mr. F. Shaw), and the consulting engineers were Jenkins and Potter.

ELECTRIC FLOOR-HEATING TRIALS

Floor-heating tests carried out in a terrace of three-bedroomed houses occupied by workers at a power station, are described in the 15th Utilisation Research Report published by the Electricity Council.

Copies of the report, which is illustrated with photographs, charts and diagrams, may be obtained, free of charge, on application to the Press and Information Officer, Electricity Council, Trafalgar Buildings, 1 Charing Cross, London, S.W.1.

Men and Movements

THE appointment of **Mr. Edward T. Green, A.R.T.C., A.S.M.A.**, as industrial sales manager concentrating on the coal, electricity, gas and chemical industries, has been announced by J. I. Case Company, Ltd. Mr. Green was originally an engineering designer before going over to industrial sales in 1946. He has travelled extensively in Europe, Africa and the Far East. His appointment will cover the British market. The company have announced the appointment of **Mr. R. J. E. Smith** as area representative for outer London. He was formerly a senior demonstrator with the company.



E. T. GREEN

Bray Construction Equipment, Ltd., have announced the appointment of **Mr. W. Muir** as London manager. Mr. Muir was previously with the Caterpillar Tractor Co., Ltd., first in Leicester as parts promotion manager, and latterly as manager, London office. Before joining Caterpillar he was, from 1951 to 1955, stores and purchasing officer with British Road Services, Leicester/Northants district.

Mr. L. J. Eames, F.C.I.S., F.C.W.A., A.A.C.C.A., has been appointed a director of Copperad, Ltd. He has been with the company since 1953, and has been its secretary since January, 1954. He is already a director of the Copperad subsidiary companies.

Mr. R. Turner has been appointed managing director of Powell Duffryn Technical Services, Ltd., in place of **Mr. D. G. Hemmatt**, who has resigned from the company.

Mr. Stanley K. Wheatley has been appointed a director of the Sheffield Wire Rope Co., Ltd., a member of the Firth Cleveland Group. He has been 44 years with the firm, the last 15 years as company secretary. Mr. Wheatley was appointed an executive director in 1959.

Mr. Arthur Floyd has been appointed

to the Royal Fine Art Commission in place of **Sir Allan Quartermaine**. Additional members appointed are **Sir Hugh Casson** and **Mr. Raymond C. Erith**.

The technical staff of the Plywood Manufacturers' Association of British Columbia in London has been joined by **Mr. John A. McLean**, from Vancouver. He will concentrate his field promotion efforts in areas to the north of Birmingham.

Mr. R. G. Russon, of the construction division of Modular Concrete Co., Ltd., has been appointed to the position of contracts manager.

The Goodyear Tyre and Rubber Company (Great Britain), Ltd., have appointed **Mr. J. L. Mumby** as financial director and secretary in succession to **Mr. W. R. Booth**, who has returned to the United States as an assistant treasurer of the parent Goodyear Tyre and Rubber Company in Akron, Ohio, and treasurer of the subsidiary Goodyear International Corporation. Mr. Mumby was formerly secretary-treasurer of Goodyear-Peru.

Lt.-Cdr. R. B. Lakin, D.S.O., D.S.C., has been appointed a director of Vickers-Armstrongs (Engineers), Ltd., and general manager of the company's North East Works, in succession to **Mr. J. R. Kelly**, who has reached normal retirement age.

Eastwoods, Ltd., have announced that **Sir Derek Walker-Smith, Bt., T.D., Q.C., M.P.**, has been co-opted to the board of the company.

The managing director of Foster Wheeler, Ltd., **Mr. C. E. H. Verity**, has been elected to the board of the parent company, Foster Wheeler Corporation, New York.

Mr. G. R. Francis has been appointed traction engineer to British United Traction, Ltd. He will be responsible for initiating and progressing all new traction installations for both shunting locomotives and railcars.

Mr. A. R. Jackson has been appointed to the board of the Consolidated Pneumatic Tool Co., Ltd. He is general manager of the company's Australian branch and will continue in charge of operations in that country. Joining the company in Australia in 1927, Mr. Jackson was appointed general manager of the Australian branch in 1952.

VALUE OF NEW ORDERS OBTAINED IN THE SECOND QUARTER

CONTRACTORS in Great Britain obtained orders for new work in the second quarter of this year to the value of £452m., compared with orders valued at £473m. in the first quarter.

Orders obtained for work for public authorities (excluding housing) in the first quarter of this year included several very large contracts, and the figure was therefore exceptionally high. Moreover, orders

in the second quarter tend to be reasonably low.

Although orders for private houses were lower in the second quarter than in the first quarter of this year they were considerably higher than in the same period in 1959, and the decrease between the first and second quarter was less than last year.

Orders for private industrial building continued to rise and increased from £82m. in the first quarter to £92m. in the second quarter.

Value of New Orders Obtained by Contractors

	1959		1960	
	1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
New Housing				
For Public Authorities	72	65	61	62
For Private Developers	118	97	132	113
Housing Total	190	162	193	175
Other New Work				
For Public Authorities	101	110	131	121
For Private Developers:				
Industrial	55	63	82	92
Miscellaneous	56	58	67	64
Other New Work Total	212	231	280	277
Total All New Work	402	393	473	452

MINISTER APPROVES TOWER HILL OFFICE BLOCK

MR. HENRY BROOKE, Minister of Housing and Local Government, has granted permission for a multi-storey office building on the site of 8-10 Cooper's Row, Tower Hill, London.

An application for planning permission for this block—partly of 12 and partly of five storeys—was made on behalf of the Bernard Sunley Investment Trust, Ltd. The Minister directed, under section 15 of the Town and Country Planning Act, 1947, that the application be referred to him for decision and a public inquiry was held on June 8.

Crux of the Matter

The Inspector who held the inquiry said in his report to the Minister that the crux of the matter was the height of the main block. The London County Council, supported by the Royal Fine Art Commission, considered that it should be reduced to eight storeys. A difference of about 40ft. was in dispute.

The Inspector considered in detail the appearance which the building would have from various viewpoints ranging from Tower Bridge to Brass Mount and from Tower Hill to Speakers Corner. He concluded that from most of them the building would not be viewed in conjunction with the Tower. He pointed out that the principal viewing point is Speakers Corner and the Concourse and that from this area the proposed building would not be likely to distract attention from the Tower itself. He considered that the additional four floors would not result in a structure out of scale with the precinct or detrimental to the Tower or other buildings.

Less Obstructive

The Minister's decision letter says—"On the question of the height of the main block the Minister notes that it is now proposed to set this back from the frontage to Cooper's Row, where he thinks it would be less obstructive than in the position in which it was shown to the Royal Fine Art Commission, and he accepts the Inspector's view, reached after a very careful inspection of the site from a number of different viewpoints, that a 12-storey block would be acceptable in this position."

Accordingly, the Minister granted permission, subject to standard conditions relating to detailed plans, parking, loading and unloading.

"SEE HOW THEY GO" No. 10

During the past six months major road construction schemes which will cost almost £39m. have been commenced. More than half that total will be spent on three of the schemes: 28 miles of motorway between Twynning and Lydiat Ash, which will be part of the Bristol to Birmingham Motorway; duplication of Blackwall Tunnel, London; and the new Park Lane, London. The first, and most expensive of these, should be ready by October, 1961. It will cost £8,580,000.

All road projects costing over £100,000, started in England and Wales from January to June, 1960, are listed on the 10th chart in the British Road Federation's series, "See How They Go."

BRITISH TRANSPORT ORDER 22 NEW CRANES

Twenty-two electric cranes have been ordered by British Transport Docks for Grange Dock, Grangemouth. Contracts have been awarded to Stothert and Pitt, Ltd., Bath, for 16 6/3-ton and two 10/3-ton cranes, and to Cowans Sheldon and Co., Ltd., Carlisle, for four 7½/4-ton units capable of dealing with general traffic or discharging bulk dry cargo by grab.

The new appliances are part of the major scheme announced earlier this year for the modernisation of the Tongue berths and the South Quay at Grange Dock.

MINISTER TO OPEN PUBLIC WORKS EXHIBITION AT OLYMPIA

THE Public Works and Municipal Services Congress and Exhibition will be opened at Olympia on Monday, November 14, by Mr. Henry Brooke, Minister of Housing and Local Government.

This is one of the "shortest-lived" of all the major exhibitions but one of the busiest. During the six days it is open, official delegates from nearly every local authority in Britain visit Olympia. The comprehensive display of plant, machinery and equipment vital to the needs of modern communities in all parts of the world also attracts official representatives from many foreign countries. In 1958 prospective buyers from 86 countries signed the visitors' book.

Many of these delegates from both home and overseas will attend one or more of the 19 sessions of the Congress in the three halls set aside for this purpose inside Olympia. The 21 Papers to be read will cover a wide variety of subjects affecting every branch of municipal and local government work.

Congress Programme

The provisional programme of the Congress, following the official opening at noon on November 14 is:

November 14—2.30 p.m.

Under the auspices of The City and Borough Architects Society on behalf of the R.I.B.A.—

"Coping with the Car—The Architect's Contribution: (1) In the Housing Estate; (2) Beyond the Housing Estate," by J. L. Womersley, city architect of Sheffield, and L. C. Howitt, city architect of Manchester.

Under the auspices of The Institution of Highway Engineers—

"The Development of Traffic Engineering in a County," by E. Ogden, B.Sc., traffic engineer, Lancashire C.C.

Under the auspices of The Institution of Gas Engineers—

"Space and Water Heating Equipment in Houses and Flats to conform with the requirements of the Clean Air Act," by W. H. Welch, new buildings officer, Tottenham

Division, Eastern Gas Board.

"Unusual Engineering Problems encountered in the Laying of Gas Mains," by Frederick Bell, B.Sc., distribution engineer, Southern Gas Board.

November 15—10.30 a.m.

Under the auspices of The Congress Council in conjunction with The Building Research Station, D.S.I.R.—

"A Survey of the Methods used for Determining the Bearing Capacity of Piled Foundations," by T. Whitaker, M.Sc.

Under the auspices of The Institution of Municipal Engineers jointly with The County Surveyors Society—

"Aesthetics and the Municipal Engineer," by F. W. Dawkes, B.Sc., borough engineer of Bedford.

2.30 p.m.

Under the auspices of The County Surveyors Society jointly with The Institution of Municipal Engineers—

"Motorway Construction in Hertfordshire," by Lt.-Col. C. H. ffolliott, B.A., county surveyor of Hertfordshire.

Under the auspices of The Institution of Public Health Engineers—

"The Organisation and Construction of Public Health Engineering Works," by A. Osborne, B.Sc.

November 16—10.30 a.m.

Under the auspices of The Royal Society of Health—

"Deemed to Satisfy—a Study of House Building Control," by H. E. Gilby, J.P., engineer and surveyor, Hertford R.D.C.

Under the auspices of The Association of Public Lighting Engineers—

"Public Lighting by Regional Lighting Authorities," by J. H. Morrison, public lighting engineer, Bolton.

2.30 p.m.

Under the auspices of The Royal Institution of Chartered Surveyors—

"The Redevelopment of a Private Urban Estate (with particular reference to the Calthorpe Edgbaston Estate, Birmingham)," by H. E. Greening, B.Sc.

Under the auspices of The Institute of Park Administration—

"Pollution, Parks and Plane Trees," by S. Pittam, B.Sc., deputy general manager,

City of Birmingham, Parks Department.
"Landscaping the Motorways," by L. E. Morgan, M.B.E.

November 17—10.30 a.m.

Under the auspices of The Town Planning Institute—

"Standards of Layout and Construction of Streets for Residential Estates," by J. G. Jefferson, county planning officer, West Sussex C.C.

Under the auspices of The Association of Public Health Inspectors—

"Housing: Looking to the Future," by C. A. Stansbury, O.B.E., chief public health inspector, Walsall C.B.

Under the auspices of The British Waterworks Association—

Current Water Supply Problems.

2.30 p.m.

Under the auspices of The Congress Council—

"Submersible Pipelines Round the World," by S. V. Sammy Collins.

November 18—10.30 a.m.

Under the auspices of The Institution of Civil Engineers—

"The Management and Operation of a Civil Engineering Contractors' Plant Depot," by J. H. Brass.

Under the auspices of The Institute of Sewage Purification—

"Recent Middlesex Developments in Mechanisation and Automation of Sewage Plant Operations," by C. B. Townend, C.B.E., B.Sc., main drainage engineer, Middlesex C.C.

2.30 p.m.

Under the auspices of The Institute of Public Cleansing—

"The Salvage Potential of Domestic Refuse," by A. E. Higginson, public cleansing superintendent, Chesterfield.

Under the auspices of The County Land Agents Society—

"The River Board, the Drainage Board and the Local Authority: The Maintenance and Improvement of Arterial Watercourses," by W. G. Steel, M.B.E., county land agent of Cumberland, and A. G. O. Ashpole, county land agent of Huntingdonshire.

T.D.A. ACIDITY AND CORROSION STUDIES

Recently the Timber Development Association have been studying the acidity of European redwood and whitewood used widely in packaging, in the manufacture of wood wool and as sawdust in packages containing metal articles. The aim of the investigation was to discover the range of pH normally encountered in these timbers, to study its development with time under damp conditions and to examine the corrosive properties of the timber.

Thirty-five samples of redwood and 37 sample of whitewood were examined. Corrosion losses in all cases were found to be small. One of the most interesting features of the results of investigation is that the acid samples of sawdust all became less acid over the period of the experiment, to the extent of being unlikely to enhance corrosion any more. Whitewood and redwood are therefore unlikely to cause corrosion troubles in packaging of iron and steel by virtue of their presence and have little effect on corrosive conditions which may arise because of excessive moisture, assuming always that the packaging material is dry to start with. The experiment showed further that there is no significant difference between the pH of the redwood and whitewood samples studied, so that there is no reason, on pH grounds, why either timber should be preferred for packaging.

A description of the experiments is given in "Acidity and Corrosive Effects of Redwood and Whitewood," by V. R. Gray, M.A., Ph.D. and Marian E. Wheeler (T.D.A. Research Report C/RR/7), copies of which may be obtained, price 3s. 6d., from the Timber Development Association, 21 College Hill, London, E.C.4.



These barley silos being built at Wallington, Berks., for British Maltings, Ltd., are seen after five months construction work. The contractors, William Thornton and Sons, Ltd., Liverpool, are using the Prometo lifting system for the sliding form shuttering, the tower block being 147ft. high. Gelder and Kitchen, Hull, are the architects

Talking of Safety

by
"DRAGEE"

SMOKING has been blamed for a great many mishaps, usually involving fire and explosion. We all know the probable consequences of throwing a glowing cigarette end into a bucket of petrol (one daring soul tried to demonstrate once too often that this could be done with impunity—and paid dearly for his folly) and we have heard of the spectacular consequences of "lighting up" inside a vessel which has contained an explosive vapour.

We now learn that there are certain side-effects to smoking which few of us would have suspected but for the researches of a certain authority in social medicine. He has found that smokers have more accidents than non-smokers, and that workers under the age of 35 years are affected more than older men.

Two reasons are given for these findings. The first one is that smoking affects muscular control and co-ordination of action. The second is that persons who smoke heavily are constitutionally liable to accidents.

There was, however, one occasion which came to my knowledge, when a particularly weird incident arose more or less directly from a man's love of his second best friend—his pipe. I am happy to say that it did not occur on any of my jobs, although the consequences did, in fact, serve as an impressive object lesson.

Mr. Augustus Smith was the managing director of a medium sized firm of constructional engineers, and for some months Mr. Smith had been energetically pursuing a safety campaign over the length and breadth of his domain. At first this had been conducted through the authority of the senior engineers, but in the course of time Mr. Smith decided to see for himself the results of his campaign by paying a series of visits to a number of sites in person. Under any circumstances the visit of a managing director would have been electrifying; now, with a very fierce bee buzzing in the big man's bonnet, the effects were dramatic in the extreme. Every de-

"Dragee," who is a practising safety engineer, would welcome subjects for discussion in this column. All names of persons mentioned in these discussions are entirely fictitious. Questions of law are expressed as the author's personal opinions and are not claimed to be authoritative.—EDITOR.

mand was met with alacrity, and one did not fail to note that Mr. Smith's special concern was goods hoists. . . .

Unfortunately, the sharp wind of Mr. Smith's campaign had not fully penetrated the direction of a certain site in East Anglia, where an over-harrassed agent was trying to cope with a particularly difficult building operation at a factory well noted for its stubborn and unreasonable attitude to contractors. Mr. Wilkes (the agent) may well have read Mr. Smith's first booming announcement of the forthcoming campaign, and it is possible that he put it aside to read when more pressing matters had been settled. The follow-up material from his immediate chief was somehow mislaid, and the last batch of propaganda—which included a poster with Mr. Smith himself pointing an admonitory finger, and the words **WHAT ARE YOU DOING TO STOP ACCIDENTS?** underneath—somehow (was it an accident?) landed in the waste paper basket.

This site perchance was destined to be first in the list of visits, and Mr. Smith, accompanied by the contracts engineer Mr. Doughty, duly arrived at Mr. Wilkes' office, full of benign anticipation.

Jim Wilkes looked up with a start. Contrary to normal custom the visit was unannounced, and when its purpose had been explained, Wilkes stood stricken dumb for several moments before he rallied sufficiently to offer the visitors some tea. This brief ceremony gave him the opportunity to hiss a few urgent instructions to the junior timekeeper, and after that his fate was in the hands of the gods.

Afterwards, Jim Wilkes recalled how he conducted the little procession to the scene of the work, how he led the way, followed by Mr. Doughty, with Mr. Smith following in the rear, at the same time filling his large briar pipe. Jim Wilkes and Mr. Doughty passed through some scaffolding and when they turned round a few seconds later, Mr. Smith had vanished.

They retraced their steps and looked around carefully, but in vain. There was a bustle of men about them and a great deal of racket from the pneumatic picks. Enquiries were out of the question, and they could only look at each other in a daze. Eventually, uncertain and slightly awed as though in the presence of the supernatural, they went back to the site office and waited.

Exactly five minutes later Mr. Smith walked in.

"I'm glad to see you both managed to get back safely," he said with calmness.

"Good heavens! What happened, sir?" exclaimed Mr. Doughty. Wilkes, sensing trouble, waited in misery.

It appears that the route through the scaffold led across the unguarded well of a goods hoist. The first two men passed over it, unsuspecting, but at the moment Mr. Smith stopped to light his pipe he was actually standing on the empty hoist platform and a second later he found himself precipitated upwards to a landing some 50ft. above ground level. The hoist stopped, and Mr. Smith advanced outwardly unscathed, but inwardly in a turmoil of emotion, upon the startled hoist operator. . . .

Within a matter of hours the hoist was properly fenced and fitted with the necessary safeguards. Smarting and with a certain grim satisfaction Wilkes personally fixed the official warning notice:

"PERSONS ARE FORBIDDEN TO RIDE ON THIS HOIST" and on the following day an unknown wag added the sign: **"NO SMOKING"**.

MOTORWAYS, NOT JUST DUAL-CARRIAGEWAYS

Motorways, and not dual-carriageway all-purpose roads, should be built wherever any trunk routes are improved, states the British Road Federation in the editorial of the September issue of its "Bulletin."

"Twenty-five years ago," says the Federation, "the B.R.F. was urging the motorway principle on the Government when official policy was to improve existing all-purpose roads and build by-passes. An 870-mile network of rural motorways is now slowly being constructed, although much-needed urban motorways are conspicuous by their absence.

"In today's circumstances it is essential, when it is necessary to improve an existing single-carriageway trunk road carrying heavy traffic, that the improvement takes the most efficient form—a separate motorway.

"Present traffic demands, to say nothing of those with which we shall be faced in the future, call for a revision of the policy which determines the construction of all-purpose dual-carriageway trunk roads."

T.D.A. OPEN-DAY

The research laboratories of the Timber Development Association, near High Wycombe, will be open to the public on Wednesday, October 12, and Thursday, October 13, from 9.30 a.m. to 5 p.m.

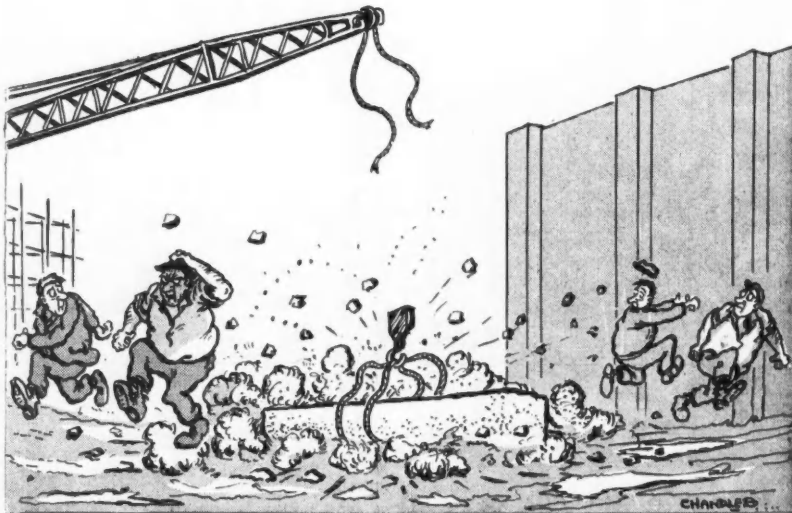
Anyone wishing to visit the laboratories on either of those days should get in touch with the Secretary of the T.D.A. at 21 College Hill, London, E.C.4.

BOOK REVIEWS

Using Centrifugal Pumps, by E. Allen. Publishers: Oxford University Press, Amen House, Warwick Square, London, E.C.4. Price 30s. 246pp.

As simply as possible this book deals with the fundamental principles and characteristics of the centrifugal pump. Wherever the possibility of installing such pumps exists, be it for the construction of foundations as a semi-permanent measure or the clearing of floodwater as an emergency need, those likely to be concerned with such an installation would find this volume of extreme value.

The accent of the text, which has been written primarily for operating and maintenance staff responsible for the efficient running and day-to-day care of pumps, is largely on mining, but the different conditions of pumping which this industry provides makes it an ideal choice to show typical examples of pumping procedure and problems.



"Remind me to have a word with the fitters!"

CENTRAL BOILER HOUSE TO SERVE FOUR LIVERPOOL HOSPITALS

Underground System of R. C. Ducts

A CENTRAL boiler house, which is being constructed for the United Liverpool Hospitals at Mulberry Street, Liverpool, is located to serve the Maternity Hospital to the north-west, the Ear Nose and Throat Hospital to the south, and the Children's Hospital to the south-east.

The hospitals are linked to the boiler house by a system of underground reinforced concrete ducts which were constructed in 1954-55. The scheme is now also being extended to include the Women's Hospital situated 130yd. farther south from the Children's Hospital.

The site of the boiler house is flanked on three sides by 17ft. high retaining walls which were constructed at the same time as the external ducts. The present project includes the construction of the boiler house with adjacent calorifier house, fan room and chimney. An external elevated ramp will lead up to the ash hopper and bunkers, and an adjacent lower ramp down to the yard area.

Superstructure

The superstructure to the boiler house and calorifier house will be constructed in structural steelwork built up on three sides on the existing reinforced concrete piers projecting from the retaining walls. The main building is approximately 86ft. by 72ft. in plan area.

The boiler house floor slab consists of a 15in. reinforced concrete raft to accommodate three 30ft. Lancashire boilers, with provision for a fourth boiler.

At the back of the raft an Economiser is carried on a 10in. thick reinforced concrete slab, the raft is flanked by a concrete ramp leading down from the firing floor in front of the boilers. Above the firing floor four 12ft. deep reinforced concrete fuel bunkers are suspended from the structural steelwork, with an adjacent concrete ash hopper in the end bay. The stanchion bases supporting the bunkers, and internal wall foundations are constructed in reinforced concrete, as well as the floor slabs to the fan room and calorifier house.

The reinforced concrete chimney will be 150ft. in height, with an overall width of

10ft. for the main 120ft. height above the roof level of the fan room. The shaft consists of a 16-sided reinforced concrete shell of minimum 6in. thickness, lined with 4½in. Accrington "Nori" acid-resisting bricks supported on r.e. corbels at 30ft. intervals. A ventilated air gap of variable width is formed between the concrete and the lining. The top 19ft. 6in. height of chimney is shaped out to a maximum width of 14ft. reducing to 6ft. width at the cap. The lower 30ft. height is 15in. thick with openings for the main flue, fan duct and access door, with a construction opening at a higher level.

The reinforced concrete elevated ramp is curved on plan, being approximately 86ft. long and 15ft. in width. The ramp consists of a 7½in. slab supported on main beams which span from a curved existing retaining wall on one side, to 12in. square reinforced concrete columns adjacent to the lower ramp. Below the elevated ramp the space is sub-divided into ancillary rooms.

Extending from the Women's Hospital to the Children's Hospital, the new duct will be 380ft. in length. It is rectangular in section, 6ft. by 6ft. 6in. internally, with 9in. reinforced concrete walls and slabs. The top of the duct varies from 4ft. to 6ft. below road level, and is positioned to pass under an island and the corner of a main road at the junction of minor roads, before emerging under the wing of the Children's Hospital.

Consultants and Contractors

Architects for the scheme are William Holford and Partners, Liverpool, the consultant engineers are E. Griffiths and Sons (heating and hot water), R. G. Devey is the electrical consultant and Dansken and Purdie are the quantity surveyors.

The main contractors for the boiler house are Peak Construction (Liverpool), Ltd., and Tileman and Co., Ltd., London, are the sub-contractors for the construction of the reinforced concrete chimney. The British Reinforced Concrete Engineering Co., Ltd., are responsible for the design of all the reinforced concrete work and for supplying the reinforcement.

115 FOUNDATION PIERS EXCAVATED IN FOUR DAYS

A NEW factory for the manufacture of American type bowling alley equipment is to be built at Whitstable on 115 cylindrical concrete foundation piers, excavated in four days with one rig by Economic Foundations, Ltd., London, S.W.1.

Economic Foundations, who pioneered this type of drilled foundation pile in Britain, say the cylinders are up to 10ft. in depth and from 3ft. 6in. to 4ft. 6in. in diameter.

The factory building itself is to be constructed by Sir Robert McAlpine and Sons, Ltd., for the American Machine and Foundry Co., Ltd. The architects are Fuller, Hall and Foulsham, of London.

STRUCTURAL FRAMEWORKS FOR FACTORY BUILDINGS

Modern materials and methods of design offer a range of types of roof structure that can be adopted for a particular factory. First cost will often be decisive in making a choice, but maintenance costs and characteristics relevant to production layout, heating, lighting, noise control and fire resistance may also need to be taken into account.

Factory Building Studies No. 7, "Structural Frameworks for Single-storey Factory Buildings" (published for D.S.I.R. by H.M.S.O. price 4s. (72 cents U.S.A.), by post 4s. 7d.), gives details of how costs are affected by roof type, roof span, column spacing, clear height and loading, with more general discussion of the influence of structural type on the satisfaction of other functional requirements.

FORTH ROAD BRIDGE

Bids Invited for Contract No. 5

As officially announced elsewhere in this issue, tenders are now being invited for Contract No. 5 of the Forth Road Bridge, involving roadworks north of the Firth of Forth. These include approximately 3½ miles of dual carriageway approach roads and four miles of connecting roads; 10 reinforced concrete bridges; a 600ft. long reinforced concrete viaduct; and 1,000ft. long twin tunnels.

Tenders are to be submitted by November 15. The consulting engineers are Mott, Hay and Anderson, 14 Melville Street, Edinburgh, 3.

FOR THE DIARY

Sept. 16

Meeting of the Birmingham branch of the Institution of Plant Engineers, Imperial Hotel, Birmingham. 7.30 p.m. Mobile Plant Discussion Group.

Annual meeting of the North Western District of the Institution of Municipal Engineers at the Town Hall, Rochdale, 11.30 a.m.

Sept. 21

Conference of the British Waterworks Association, Edinburgh. Sept. 21-23.

Factory Equipment Exhibition, Belle Vue, Manchester. Sept. 21-Oct. 1.

Sept. 22

Meeting of the Yorkshire branch of the Contractors' Mechanical Plant Engineers, Metropole Hotel, Leeds. 7.30 p.m. Ladies' Night.

Sept. 23

Commercial Motor Show, Earl's Court, London, Sept. 23-Oct. 1.

Sept. 27

Meeting of the Mid-Southern branch of the Contractors' Mechanical Plant Engineers, The George Hotel, King Street, Reading. 7.30 p.m. Film show.

Sept. 30

Meeting of the Metropolitan and Southern branch of the Institute of Sewage Purification, Friends House, Euston Road, London, N.W.1. 6.30 p.m. Discussion—New and

Pending Legislation—introduced by J. L. Spiller.

Southern District of the Institution of Municipal Engineers. Lunch and meeting at Swindon.

Oct. 3

Conference of the Institute of Quarrying, North British Hotel, Edinburgh, Oct. 3-6.

Oct. 5

Meeting of the North West branch of the Contractors' Mechanical Plant Engineers, Kirkby Executive Club, Liverpool. 7.30 p.m. Ladies' Night.

Oct. 6

Convention on Parking arranged by the Institution of Municipal Engineers at Central Hall, London, 10 a.m.

Oct. 10

Meeting of London branch of the Institution of Plant Engineers, at the Royal Society of Arts, John Adam Street, London, W.C.2, at 7 p.m. An international Paper "Plant Engineering on the Continent."

Oct. 11

Building Trades Exhibition, City Hall, Deansgate, Manchester, Oct. 11-22. Annual dinner of the Contractors' Plant Association, Dorchester Hotel, London. 7.30 p.m.

Meeting of the Birmingham branch of the Institution of Plant Engineers, Hotel

Leofric, Coventry, at 7.30 p.m. Talk on "Modern Air Compressors and Equipment."

Oct. 12

South Western Branch of the Institution of Highway Engineers. Meeting at Fortt's of Milsom Street, Bath, 12.15 p.m., at the invitation of the Bituminous Roads Development Group.

Oct. 13

Twenty-first national conference of the Council for the Preservation of Rural England, Pavilion, Weymouth. Oct. 13-15.

Oct. 14

Annual dinner and dance of the Institute of Quantity Surveyors at the Trocadero Restaurant, London, W.1.

Joint meeting of the Southern District of the Institution of Municipal Engineers with the Institution of Civil Engineers (South Western) at the Military College of Science, Shrivenham, Berks.

Oct. 18

National conference of the Town and Country Planning Association, Church House, Great Smith Street, London, S.W.1. "Planning and the Motor Vehicle." Oct. 18-19.

Oct. 19

Annual general meeting of the Institute of Quantity Surveyors at 6.30 p.m.

Oct. 20

Meeting of the Yorkshire branch of the Contractors' Mechanical Plant Engineers, Station Hotel, York. 7.30 p.m. Lecture on "Plant Maintenance."

Trade Section

BEDFORD RANGE OF FORWARD CONTROL TRUCKS

12 Different Standard Models

A NEW range of Bedford commercial vehicles, covering five different load ratings between four tons and 12 tons, has been announced by Vauxhall Motors, Ltd., Luton, Beds.

A feature of this TK range, which includes lorries, tippers and tractor units for articulated vehicles, is the mounting of the engine vertically in an entirely separate compartment to the rear of the cab, giving advantages of comfort and visibility within the cab, which has a flat unencumbered floor.

Including long and short wheelbase variants, there is a total of 12 different

mechanical handbrake which operates a brake built into the propeller shaft.

With the major weight of the engine behind the front axle, the load on the front wheels is reduced, and a higher proportion of the all-up weight is carried by the rear axle. When loaded to the maximum, the weight distribution is approximately 29 per cent. front, 71 per cent. rear.

The largest of the rigid models, the six-tonner, seven-tonner and 7½-tonner, are available with 16ft. or 18ft. body space. Three tractor units cover semi-tractor payloads of 8 tons, 10 tons and 12 tons, and,



A 5-tonner from the new range of forward-control trucks

standard models in the range, and with all vehicles there is a choice of petrol or diesel engine. With the majority there is a choice of four- or five-speed gearbox and single- or two-speed rear axle.

The braking system includes a three-way safeguard against brake failure, consisting of a tandem master cylinder which isolates the front brakes from the rear in the event of loss of fluid; direct connection at all times between the pedal and the hydraulic system; and a completely independent

with an extra-short wheelbase of 96in. have a turning circle of 33ft.-34ft. for easy manoeuvring.

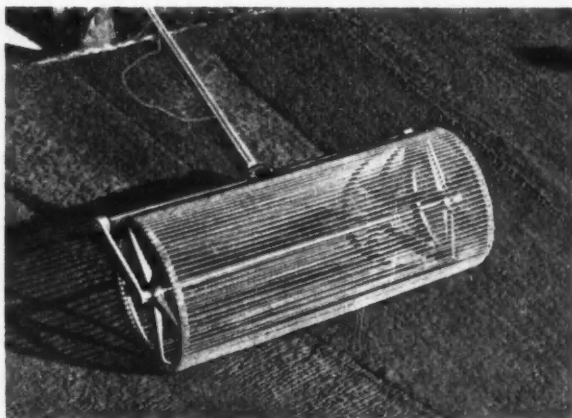
Lighter models in the range are fitted with 16in. wheels that extend the advantages of extra-low loading height (3-ton and 4-ton, 41½in.; 5-ton, 42½in.) into the 5-ton payload class. For the first time a 6-tonner is offered with a 17in. wheel option, which brings a 1½in. saving on loading height. Loading height for the heavier models is 46½in.

U.S. ROLLER PREPARES CONCRETE FOR FINISHING

A MACHINE developed in the United States by The Goldblatt Tool Company, 1910 Walnut Street, Kansas City 41, is claimed to speed up concrete tamping, improve the quality of the final slab and cut the time needed for finishing.

Called the Jitterbug roller, the machine consists of 91 steel rods mounted on 15in. diameter wheels, the action of which is to push the larger aggregates just below the surface of the concrete. Supplied with a 12ft. long magnesium handle, the roller is used like a float, being pushed out over the slab and then pulled back again by the operator, who stands well clear of

the mix. In this way, a strip 35in. wide can be tamped by pushing the roller out and back several times.



Jitterbug roller

News from the Boardroom

THE intense competition in contracting, particularly in road works, is referred to by Mr. Robert M. Douglas, chairman of Robert M. Douglas (Contractors), Ltd., in his statement to be presented at the annual general meeting of the company on September 28. "In common with other contractors we are disappointed with the outcome to date of this class of work," he states. The company experienced a substantial fall in trading results during the year ended March 31, 1960; the consolidated trading profit for the year was £416,458 as compared with £661,003 a year ago. But Mr. Douglas reports that the aggregate value of work in hand is at the highest level for some time past and says that unless something unforeseen occurs their turnover is likely to expand.

THIS competition is also referred to by Mr. Cyril M. Cohen, chairman of the George Cohen 600 Group, in his statement to be submitted at the annual general meeting on September 27. Their subsidiary Henry Osman and Co., Ltd., specialising in main drainage and sewage treatment contracts, had to contend with "intense rivalry, rising costs and other difficulties." But the revenue earned by the George Cohen contractors' plant fleet further increased, and during the year many units were added to the fleet. The sales and hiring of contractors' plant also continued at a very satisfactory level.

THE Austin-Hall Group's Silver Jubilee year as a public company was in the words of the Chairman, Mr. James B. Austin, a "truly momentous one." The company achieved their highest output and sales and made their highest profits during the year—1959/60—and Mr. Austin says they look forward confident that, so long as there are no major political upsets nor any further artificial damping down of demand, they should have another busy year in front of them. During the year they were faced by slowly increasing costs in all the manufacturing companies of the Group but these were absorbed and met by improved methods of production and by greater efficiency. However, Mr. Austin states: "The woodworking industry has a proud record of stable or reducing prices over a number of years but the time has come—owing to the very substantial increase in the price of our main raw material—timber—for selling prices to rise. We all greatly regret this change but we have had no alternative."

THE problem of rising costs was also referred to by Mr. W. J. Ruston, chairman of Ruston and Hornsby, Ltd., in his report for the year ended March 31, 1960. "The constant pressure of wage and salary increases naturally tend to influence our costs and margins—possibly more than is the case with some firms—because of the extent to which we are dependent upon competitive selling of high labour content products in export markets," he states. "These rising costs can only be offset by greater internal efficiency and continual attention to product specification and design. During the past year and currently we are carrying out a major programme of investigation into both these aspects, as well as into possible new lines of production, and some worthwhile developments may reasonably be expected within the coming year.

"I can only express the hope that our efforts will not be unduly counteracted by yet further nationally negotiated wage increases in excess of those justified by increased productivity."

The 1962 Mechanical Handling Exhibition is to be held at Earls Court, London, from May 8 to 18.

Trade Section

40 COUNTRIES REPRESENTED AT EUCLID TRAINING SCHOOL

From a Correspondent

THE trend in modern earthmoving equipment towards larger and therefore more expensive machines highlights the necessity for well maintained plant. Downtime costs money through loss of production not only by the machine involved, but by the interruption of the usually tight-scheduled sequence of operations on construction sites. Three factors which considerably reduce downtime are preventive maintenance, early diagnosis of trouble and fast efficient repairs. These items can only be exploited fully by service personnel with a thorough knowledge of the plant in their care.

That this fact is recognised by some operators is amply demonstrated by the success of the service training school run by Euclid (Great Britain), Ltd., in their factory at Newhouse. Opened in November, 1957, the school has to date completed 68 courses attended by 445 trainees from 40 different countries. Applications for training continue at an encouraging level.

The school premises, specially designed and equipped for training purposes, comprise lecture room, equipped for sound-movie film projection, three laboratories and a fully equipped workshop for practical work.

Five separate courses enable instruction to be concentrated on the equipment which the trainees are connected with in the field. A two-week general course on all rubber-tyred equipment, one-week courses on rear dump trucks, scrapers and crawler tractors, and a one-week course on the Allison semi-automatic transmission are available. Each course follows a basic pattern of theory lecture and discussion followed by dis-

mantling and reassembly of each component applicable to the models covered by the course.

Situated within the factory the school has full access to details of the latest improvements in design for incorporation in lectures. The factory itself affords an



Instruction on rear dump unit

opportunity for trainees to observe factory methods and facilities and see units on the assembly lines at all stages of construction.

Courses are limited, where possible, to six trainees so that the maximum of individual instruction can be given. Overseas trainees figure prominently in courses and language difficulties are overcome by

engaging interpreters, the extensive use of visual aids, and emphasis on practical work and demonstration.

Visual aids used include movie films, slides, section models and wall charts.

The courses are offered free as a service to Euclid operators and dealers who are responsible only for travelling and accommodation expenses of the trainee. Overalls, notebooks and service literature are provided for use by trainees.

While the courses are designed primarily for service and maintenance personnel, salesmen, works managers, parts managers and directors have found this type of instruction interesting and beneficial. The Service Department, Euclid (Great Britain), Ltd., Newhouse Industrial Estate, Motherwell, Lanarkshire, Scotland, will provide readers with details upon request.

NEW ARC-WELDING ELECTRODE INTRODUCED

A new arc-welding electrode, known as "Opal 3½ Ni," has been developed by Cooper and Turner, Ltd., Vulcan Works, Vulcan Road, Sheffield, 9, for the welding of low carbon 3½ per cent. nickel and similar steels where good Charpy Impact values are required at sub-zero temperatures.

The electrode is designated E616 on the B.S. 1719 coding or E8016-C2 on the AWS-ASTM scale. Particular features are the stability of the arc and the ease of slag control which enable D.C. and A.C. supplies down to 70-V open circuit to be used. The mechanical properties of the "Opal 3½ Ni" electrode include a Charpy Impact value of 15/20ft./lb. at -100 degrees C., a yield point of 27/31 tons/sq. in., and an ultimate tensile strength 34/40 tons/sq. in. The carbon content is 0.5-0.8 per cent., with silicon being 0.25-0.50 per cent. The manganese content lies between 0.4-0.8 per cent. and both sulphur and phosphorous are below 0.03 per cent. each. The nickel content is in the range 3.25-3.75 per cent.

The electrode is produced in a range of five sizes from 12 gauge to 4 gauge. The current values range from 90-A average and 110-A maximum at 12 gauge to 260-A average and 320-A maximum at 4 gauge, the deposition time per foot of electrode at maximum current being 51 seconds at 12 gauge and 62 seconds at 4 gauge. The weight of metal deposited per cwt. of electrode rises from 64lb. at 12 gauge to 78lb. at 4 gauge whilst the weight of electrodes required to deposit 100ft. of fillet weld in the downhand position is 7.5lb. with a leg length of ½ in. and 86.5lb. with a leg length of ¼ in.

EYE SCREENS FOR STREET LIGHTING FITTINGS

A new type of translucent eye-screen moulded in Rigidex high density polythene is now being used on street lighting fittings in Liverpool and district.

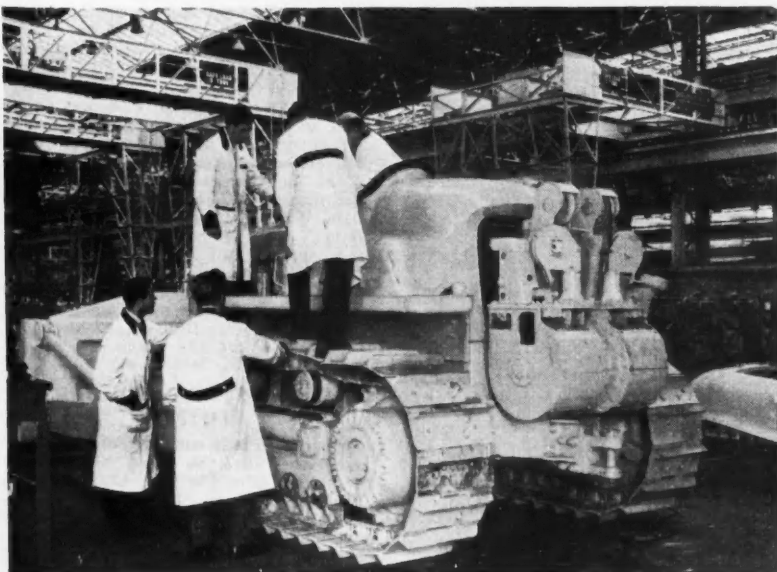
The screen is designed to be attached to the reflectors of pendant and column lighting fittings to prevent glare without significantly reducing illumination over a wide area. In shape it is a hollow cylinder of about 11in. diameter with an inclined flange.

The screen is moulded for the Corporation of Liverpool, City Lighting Department, by Hygiene Plastics, Ltd., Manchester.

MEADOWS ENGINES FOR AUSTRALIAN TRACTORS

Henry Meadows, Ltd., of Wolverhampton have received a repeat order for 300 diesel engines from a leading tractor manufacturer in Australia.

The order is for four-cylinder "330" diesel engines to be installed in Countryman tractors by the manufacturers, Chamberlain Industries Pty., Ltd., of Welshpool in Western Australia.



Practical instruction on crawler tractor

Trade Section

NEW COMPANIES

The undermentioned particulars of new companies recently registered are taken from the daily register compiled by Jordan and Sons, Ltd., company registration agents, 116 Chancery Lane, London, W.C.2:—

Calix Builders, Ltd. £100. Directors to be appointed by the subscribers. Subscribers: Dorothy M. Graeme and Gordon V. Graeme, 61 Fairview Avenue, Gillingham, Kent.

Stability Structures (Ewell), Ltd., Holmedene, Epsom Road, Ewell, Surrey, public works contractors. £100. Subscribers: William A. Brunning, Myrtle Cottage, Rosebery Road, Epsom Downs, Surrey; William H. Brunning, Holmdene, Epsom Road, Ewell, Surrey (company director).

H. L. Healy and Co., Ltd., 5 St. Nicholas Street, Leicester, builders. £500. Directors: Herbert L. Healy and Mrs. Kate Healy, 96 Station Road, Cropston, Leics.

C. F. Dennison and Son, Ltd., Dorset House, High Road, Laindon, Basildon, Essex, builders. £100. Directors: Charles F. Dennison, 202 Moor Lane, Cranham, Essex; Charles B. Dennison, 10 South Hall Drive, Rainham, Essex; David M. Loving, 145 Rush Green Gardens, Romford, Essex.

V. E. Wilson (Plant Hire), Ltd., 36 Bell Street, Whitechurch, Hants. £100. Directors: Victor E. Wilson, Dolphins, Bell Street, Whitechurch, Hants.; Elsie Piper, 16 Station Road, Whitechurch, Hants.

Abemsred Building Co., Ltd. £100. Directors to be appointed by subscribers. Subscribers: Jean Herbert, (company director) and Thomas A. Herbert (barrister), 156 Strand, London, W.C.2.

Roberts Harrington and Co., Ltd., builders. £100. Directors to be appointed by the subscribers. Subscribers: James P. Davison, 65a Fenchurch Street, London, E.C.3; Leonard M. Carrington, 66 Elmhurst Crescent, Finchley, London, N.2.

Aquadom, Ltd., Rustington Estate Office, Station Road, Rustington, Sussex, constructors of railways, gas and water works, etc. £125. Directors: Geoffrey W. Maides, Willow Cottage, Pigeonhouse Lane, Rustington; John H. Maides, 4 Gravel Hill, Addington, Croydon; William F. Pleasance, 35 Winchester Road, Worthing.

E. W. R. Ransom (Builders), Ltd., Reclea, Pooks Green, Marchwood, Southampton. £2,000. Directors: Edward W. R. Ransom and Eileen M. Ransom, Reclea, Pooks Green, Marchwood, Southampton.

Wheeler, Russell (Contractors), Ltd., 16 Berkeley Street, London, W.1, building and civil engineering contractors. £1,000. Directors: Gerald J. Wheeler, 17 Weston House, King Edward Road, London, E.9; John A. Russell, 57 Sidney Road, London, E.7.

Meteor Developments, Ltd., builders. £1,000. Directors: George B. Kemp and Mrs. Molly I. Kemp, 7 Field House, Esplanade, Bognor Regis.

P. Tullett, Ltd., builders. £100. Director: Robert G. P. Tullett, 48 Sherwood Road, Bognor Regis.

Meredith and Vesey, Ltd., 49 Wood Street, Middleton, Lancs, builders. £2,000. Directors: William A. Meredith, 49 Wood Street, Middleton, Lancs.; Lawrence Vesey, 18 Brinnington Road, Stockport, Ches.

C. R. Jones (Plant), Ltd., West Leys Road, Swanland, North Ferriby, plant hire specialists. £1,000. Directors: Audrey P. Fenwick, 81 Sandford Grove Road, Sheffield, 7; Charles R. Jones, West Leys Road, Swanland, North Ferriby.

Mennie Bros., Ltd., 6 Westfield, Hatfield, Doncaster, builders. £5,000. Directors: William Mennie, Three Views, Southfield Road, Thorne, Doncaster; Harry Mennie, 54 Doncaster Road, Hatfield, near Doncaster; Robert W. Hodgson.

K. C. Small, Ltd., demolition contractors. £1,000. Directors: Kenrick C. Small and Mrs. Vera B. Small, both of 1 Brixton Hill, London, S.W.2.

Lewis Howe and Co., Ltd., 2 Wentworth Mansions, Keats Close, London, N.W.3, builders. £1,000. Directors: Joseph L. Howe and Elspeth M. Howe, 1 St. Johns Cottages, Summers Lane, London, N.12; Elizabeth Tidd, 4 St. Johns Cottages, Summers Lane, London, N.12.

Hartley Builders, Ltd. £1,000. Subscribers: Raymond F. Fordham, C.A., 55 Hermitage Road, Plymouth; Reginald Richardson, C.A., 90 Hermitage Road, Plymouth.

B.M.S. Building Contractors (Swansea), Ltd., 7 Tower Gardens, Townhill, Swansea. £2,000. Directors: Patrick J. Byrne, 30 Creswell Road, Clase, Morriston, Swansea; Edward T. Mellowship, 66 Maesygelynen Road, Morriston, Swansea; Clifford J. Simmonds.

T. W. Newton, Ltd., 182 Painthorpe Lane, Crigglestone, near Wakefield, public works contractors. £10,000. Directors: Thomas W. Newton and Mrs. Elsie Newton, Sundowne, Denby Dale Road, Calder Grove, near Wakefield; Malcolm T. Newton, 609a Denby Dale Road, Calder Grove.

Samways and Jones (Builders), Ltd., 2 South Terrace, South Street, Dorchester. £600. Directors: Henry N. Samways, 12 Prospect Road, Dorchester; William E. Jones, 3 Northern Hay, Dorchester; Stanley G. Parsons, Cheselbourne, near Dorchester.

Llanelly Ready Mix Concrete Co., Ltd., Fernhill, Cwmbach Road, Llanelly. £10,000. Directors: Peter Evans, 1 Brynfeelin, Felenfael; Mrs. Merfydd Jenkins, Woodlands, Cwmbach Road, Llanelly; Mrs. Margaret Evans, Mrs. Catherine A. Shepherd and Isaac E. Jones.

F. W. Rought and Sons, Ltd., 7 High Street West, Sunderland, builders. £500. Director: Fredk. W. Rought, The Haven, Bridle Path, East Herrington.

Austin (Morley), Ltd., 301 Fountain Street, Morley, near Leeds, builders. £1,000. Directors: Tom Austin, 301 Fountain Street, Morley, near Leeds; Joseph Austin, 24 Great Northern Street, Morley, near Leeds; Phyllis S. Austin.

HOLMAN'S NEW ROCK DRILL

Integral Airleg and Grouped Controls

BY making the airleg an integral part of their new Silver Thirty-Three rock drill, Holman Bros., Ltd., Camborne, have been able to group all controls within easy reach of the operator's hand.

The operating air enters the machine through a single hose and is distributed internally by controls situated in the back-head. The airleg control is of the roller ratchet type and the main throttle also



A West African student at Camborne School of Mines tries the new drill

controls the flow of water to the drill bit. This grouping of controls gives easier and quicker operation, it is stated, while the built-in water control automatically ensures a flow of water immediately drilling starts.

The drill has a 3in. bore and 1½in. stroke with a shank length of 4½in., and the airleg has a feed length of 58in. The total weight is 105lb.

"PANELEC" FAULT MONITOR

The "Panelec" Heating Division of B.I.C.C. are now marketing a fault monitor which will immediately detect any damage to heating cables during the installation of solid embedded floor warming systems. By means of a bell and indicator lights, this fully transistorised electronic device, gives visual and audible warning of insulation or continuity failures on any make of cable. Consequently, the cables can be repaired or replaced before the concrete screed hardens.

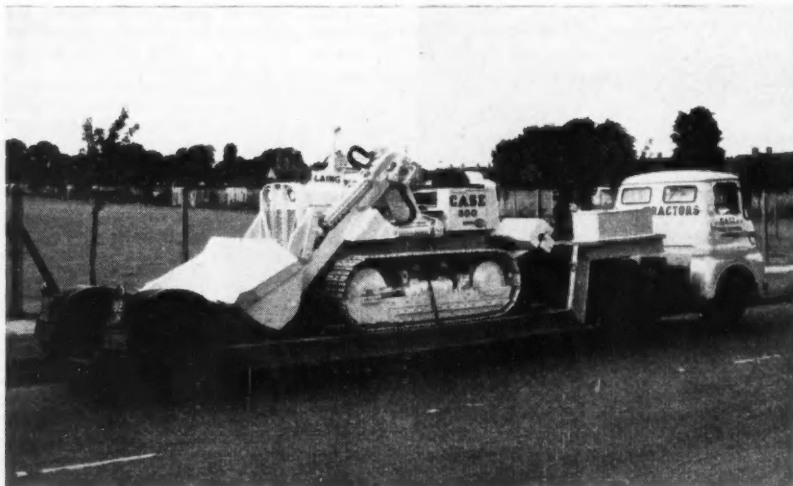
The instrument weighs 8½lb. and is contained in a sheet steel case, measuring 10½in. by 4½in. by 3½in., fitted with a leather carrying handle. Three XB103 transistors are incorporated.

The fault monitor, priced at £25 10s. net to the trade, is available from British Insulated Callender's Cables, Ltd., "Panelec" Heating Division, 83-86 Saffron Hill, London, E.C.1.

NEW FABRIC FOR PROTECTIVE CLOTHING

A multi-purpose weather protection suit, called the Elite, is being produced by J.P.C. Protective Clothing, Ltd., Sycamore Corner, Amersham, Bucks.

Available in 32 colours, the suit is made of a new fabric which is claimed to combine the strength and lightness of synthetic yarns with the suppleness and adhesion qualities of strong natural fibres, giving a high tear strength and long life.



The first Case tractor to be sold to John Laing and Son, Ltd., seen leaving the Greenford, Middlesex, service depot of J. I. Case Co., Ltd. This order followed measured output tests on working applications on Laing's Barnet By-pass contract

Current Constructional Activities

PROJECTS

CONTRACTS

AWARDS

THIS editorial feature provides readers with a comprehensive news service covering forthcoming private and public construction work. Commencing on this page information is given concerning future projects followed by details of tenders being invited. In the third section will be found news of tenders recommended for acceptance, tenders accepted and contracts awarded. Attention is also drawn to the advertisements covering contracts and appointments appearing in the front part of the Journal.

BUILDING AND DECORATING

(See also Housing Schemes)

Barnstaple, Devon.—Tenders are to be invited shortly for the erection of a factory at Braunton Road for Avers and Grimshaw, Ltd., 3 Bickington Road, Barnstaple.

Blackburn, Lancs.—Campbell and Driver, Ltd., Richmond Terrace, are the architects and A. E. Thornton-Firkin and Partners, Westminster Bank Chambers, the quantity surveyors for erection of a new residential hotel at Southfield, Shear Bank Road, for the Young Men's Christian Association. Estimated cost £35,000.

Bolsover, Derbys.—Work drawings should be completed in early November for the erection of a public house at Castle Estate for Hammonds United Breweries, Ltd., Fountain Brewery, Bradford, 5.

Bowburn, Dur.—J. M. Angus, 3 Gallowgate, Newcastle upon Tyne, is the architect for alterations and improvements to Crowtrees Workmen's Club.

Bristol.—City Council recommended to apply for sanction to borrow £47,000 for the plastering of kitchen walls in pre-war Council houses; purchase land at north-east side of Westbury Hill as site for the proposed erection of swimming baths; invite tenders from selected contractors for the construction of swimming baths at Filwood Broadway.

City Council have approved plans for the erection of an Autosilo multi-storey car park at Temple Gate for the Victoria Motor Co. (Bristol), Ltd. Alec French and Partners, Halifax House, St. Augustine's Parade, Bristol, 1, architects.

City Council have approved revised plans for extensions to the University of Bristol Dental Hospital, Lower Maudlin Street, for United Bristol Hospital Governors. Estimated cost £250,000.

Bristol.—Working drawings have been prepared and tenders about to be invited for erection of a factory at Brislington trading estate, for Serck Radiator Services, Ltd. Lucas, Roberts and Brown, Rathlin, Barnfield Road, Exeter, are the architects and R. M. Powell, Myrtle House, Myrtle Terrace, Sidmouth, Devon, the quantity surveyor. Estimated cost £12,000.

Camborne-Redruth, Corn.—U.D.C. have approved plans for the erection of a factory in the Pool area for Twentieth Century (Boxes), Ltd., The Promenade, Penzance.

Coventry.—City Council recommended to approve scheme for the erection of new Central Baths. Estimated cost £894,015.

Cwmbran, Mon.—Ministry have approved, for industrial development purposes, sites at Avondale and The Grange for the Development Corporation.

Darlington, Dur.—B.C. planning the erection of a distribution depot at the corner of Albert Street and Adelaide Street, dairy and garages at Neasham Road, and garage at the corner of Albert Street and Princes Street.

Dudley, Worcs.—B.C. recommended to apply for sanction to borrow £107,450, for completion of fourth and fifth stage of the Dudley and Staffordshire Technical College extensions and improvements.

Dundee, Angus.—Scottish Home Department have approved plans for the redevelopment of the Overgate area for City Council. Murrayfield Real Estate Co., Ltd., 7 Albany Place, Edinburgh, 2, have been chosen to redevelop the 16-acre site. Estimated cost £14m.

Durham.—C.C. to convert Brancepeth Infant School into a nursery school at £4,100, and carry out alterations and additions to Eppleton Modern School at a cost of £38,000.

Edinburgh.—W. H. Kininmonth, 16 Rutland Square, Edinburgh, 1, is the architect and

J. D. Gibson and Simpson, 3 Melville Crescent, Edinburgh, 3, are the quantity surveyors for the proposed Mary Erskine School for Girls on the Ravelston estate for the Merchant Company Education Board. Estimated cost £500,000.

Evesham, Worcs.—Ministry have approved in principle sewerage and sewage disposal scheme for Harvington, for R.D.C.

Falkirk, Stirlings.—Dean of Guild Court have approved the following: First stage of the development at the east end of the High Street for Falkirk Development Co., Ltd., 140 West George Street, Glasgow (estimated cost £187,000); erection of a garage and stores at Wellside Place for Thomas Laurie and Co., Ltd., West Bridge Street, Falkirk (£11,000).

Folkestone, Kent.—Ministry have approved B.C.'s scheme for the erection of municipal offices and car parks on site between Castle Hill Avenue and Trinity Road, at rear of the Pleasure Gardens Theatre. Plans are to be prepared for submission to C.C.

Ilford, Essex.—B.C. recommended to approve in principle the provision of two day centres for elderly people in the borough.

Inverness-shire.—C.C. have submitted plans for a school for handicapped children at Drummond to the Scottish Home Department for approval. The school will include accommodation for 45 resident students; six classrooms, two practical rooms, a library and gymnasium, etc. Estimated cost £182,000.

Leeds.—Samuel Jackson and Son, Ocean Chambers, Piccadilly, Bradford, are the architects for new premises at junction of Butis Court and Albion Street, for Shop and Stores Developments, Ltd. Sketch plans not yet prepared.

Littleborough, Lancs.—Turner, Son and Partners, Retiro Chambers, Waterloo Street, Oldham, are the architects for extensions at Honresfeld, Littleborough, for the Leonard Cheshire Home for Incurable Sick. Scheme is only in the sketch stage at present.

Longbenton, Northumb.—Fewsters, Ltd., propose showroom, depot and offices at North Road, Seaton Burn. The architect is G. T. Allnutt, 2 The Rise, Newcastle upon Tyne.

Erection of church and classrooms proposed at Wideopen for Newcastle Presbytery. The architects are Tasker and Partners, 25 New Bridge Street, Newcastle upon Tyne.

Manchester.—City Council recommended to approve the erection and furnishing of an old people's home at Goodier Street, Harpurhey; to negotiate for purchase of a site in Kirkmanshulme Lane, Levenshulme, for erection of an old people's home.

City Council recommended to apply for sanction to borrow £23,310 for modernisation of Whitworth Baths, Openshaw.

Newcastle upon Tyne.—Alterations and additions are proposed to premises in Scotswood Road for R. H. Patterson and Co. The architects are Ryder and Yates, 87 Jesmond Road.

Arthur and Kirkup, 13 Swinburne Street, Gateshead are the architects for warehouse in Railway Street and Hare Street for McKenna and Son.

City Council to erect a welfare clinic and two police flats at Fenham Hall Drive. The architects are Ryder and Yates, 87 Jesmond Road, Newcastle upon Tyne.

Office additions are proposed at Higham Place for Storey, Sons and Parker. The architects are Richard Turley Associates, 46 Jesmond Road, Newcastle.

Alterations and additions are proposed to the physiotherapy department at the Royal Victoria Infirmary for the Board of Governors. The architects are Stienlet and Son, Queen Square, Newcastle.

Tyres (Scotland), Ltd., are to extend their warehouse at Two Ball Lonnen (G. T. Allnutt, architect, 2 The Rise, Newcastle upon Tyne).

Plans are in hand for public house at Fawdon Lane for Ind Coope and Allsopp, Ltd. (firm's architect is C. L. Fairless, Royal Hotel Yard, Lower Brigade, Leeds).

Marks and Spencer, Ltd., Baker Street, London, W.1, are to carry out extensions to their stores at Prudhoe Place (Norman Jones and Rigby, architects, Lord Street, Southport).

City Estates and Property Committee are to erect a shopping centre comprising 18 shops, three large departmental stores, and multi-storey flats at Church Street, Walker, and planning approval is being sought.

Northampton.—R.D.C. to proceed with plans for modernisation of 400 houses.

Oswestry, Salop.—B.C. have approved in principle scheme for demolition of part of Cross Market, and erection of five new shops on site. Estimated cost £36,000.

Plymouth.—City Council to prepare final plans for the erection of the proposed café/pavilion on The Hoe and for an indoor swimming pool. Estimated cost £50,000.

Reading, Berks.—City and Central Developments, Ltd., Park Street, London, W.1, have submitted to B.C., for approval, plans for the development of Vincent's Yard by erection of a car park, bus station, offices and shops. Robert J. Wood and Partners, Bromley, Kent, architects.

Richmond, Surrey.—B.C. to prepare plans for the erection of shops and maisonnettes on the site, 68-74 Hill Rise.

Sheffield.—Husband and Co., 388 Glossop Road, hope to invite tenders shortly for the erection of a nine-storey office block at corner of Glossop Road and Duham Road. Plans are being prepared by staff architects.

Hadfield, Cawkwell and Davidson, 17 Broomgrove Road, are the architects for alterations to the Grand Hotel for Frederick Hotels, Ltd.

Stockton-on-Tees, Dur.—W. D. Mark and Son, 30 Lawrence Street, York, are planning the erection of cold store and offices at Port-rack Lane.

Sunderland, Dur.—P. J. Stienlet and Son, 4 Queen Square, Newcastle upon Tyne, are the architects for R.C. primary school at St. Luke's Road, Pennywell, plans approved; plans have been approved for wholesale premises, showroom, loading bays, etc., West Wear Street, for W. H. Smith and Son, London, W.C.2. The architects are Petch and Fermaud, 12 Seymour Street, London, W.1.

Sutton and Cheam, Surrey.—B.C. raise no objection to the proposed erection of a new fire station at St. Dunstan's Hill, Cheam, for C.C.

B.C. have granted planning permission for the erection of an 11-storey building at St. Nicholas Road for Surrey Motors, Ltd.

E. Alec Colman Group of Companies, 5 Hyde Park Gate, London, S.W.7, have submitted to B.C., for approval, plans for the erection of a two-storey shop fronting the High Street, with a three- and 10-storey office building at the rear, fronting Throwley Road, ground- and first-floor car park for 89 cars.

Wallsend, Northumb.—Associated Lead Manufacturers, Ltd., Crescent House, Newcastle upon Tyne, to carry out a redevelopment scheme at their Antimony Works, Stephenson Street.

Wanstead and Woodford, Essex.—B.C. are to consider scheme for the construction of a swimming pool. Estimated cost £180,000.

West Worthing, Sussex.—Tenders will shortly be invited from selected contractors for the erection of the new Goring Congregational Church on the corner of Barrington Road and Shaftesbury Avenue, Weston. Burnett and Thorne, architects, 44 Westwood Road, Southampton; and E. Morley Smith, quantity surveyors, 17 Cumberland Place, Southampton. Estimated cost £20,000.

Whitby, Yorks.—U.D.C. to extend the Market Hall, which is to be used for factory purposes by Town Tailors, Ltd. Tenders will be invited for the work as soon as possible.

DEMOLITION

Brechin, Angus.—Dean of Guild Court have approved the demolition of the following: St. Andrew's House for Co. E.C. and 11 Clerk Street and 34 Market Street for Gellatly's Wholesale, Ltd., 91 Southesk Street, Brechin.

GAS AND WATER SUPPLY

Cheadle, Staffs.—R.D.C. propose subject to Ministry approval, extension of the mains water supply to properties at Shirley, Foxt.

Guildford, Surrey.—Guildford, Godalming and District Water Board have approved schemes for improving the distribution of water supplies from Mousehill pumping station through Hydon Ball reservoir to Vann Lane, and for eliminating water shortage at Fawley Green. Estimated cost £9,695 and £4,554, respectively.

Norwich.—City Council have approved the laying of a 12in. main along Wroxham Road, from School Lane to Blue Boar Lane. Estimated cost £12,800.

Twickenham, Middx.—Borough Engineer to prepare plans for modernisation scheme for 65 old villa-type houses at Rose Hill Council Estate, Hampton. Estimated cost £66,000.

West Sussex.—Portsmouth and Gosport Water Co. propose scheme for the construction of a reservoir, pumping station and sinking of a well in the Walderton area. Estimated cost £504,000.

HARBOURS, PIERS AND SEA DEFENCE WORKS

Blyth, Northumb.—B.C. considering a £1m. scheme for the construction of a sea wall 2½ miles long. If the plan is adopted, the first stage will probably be a sea wall from Seaton Sluice harbour to a point opposite the Astley Arms Hotel, to cost £162,000.

HOUSING SCHEMES

Airdrie, Lanarks.—D. S. Bruce, 3 McGregor Avenue, Airdrie, is the architect for the redevelopment of Deedes Street which includes 94 houses and four shops.

Arbroath, Angus.—Dean of Guild Court have approved a further 19 houses and 10 garages at the Wynds and Barngreen redevelopment area for C.C. Estimated cost £37,239.

Birkenhead, Ches.—B.C. have approved plans for the erection of three blocks of 14-storey flats and 26 garages at New Hey Road, Woodchurch Estate.

Blyth, Northumb.—B.C. considering erection of 200 houses near Belside railway station.

Bristol.—J. A. Venn, Ltd., 77 Ashgrove Road, Ashley Down, Bristol, 7, propose the erection of 26 houses and two two-storey blocks of four flats each at junction of Fulford Road and Maynard Road, Hartcliffe.

Carlisle, Cumb.—John Laing and Son, Dalston Road, have purchased 37 acres of land at Knowfield, for private housing developments. It is not known yet when building operations will commence.

Derby.—B.C. propose the erection of an estate of 600 dwellings and shops at Alvaston.

Folkestone, Kent.—B.C. recommended to approve plans for the erection of 12 flats, nine garages and parking space for three cars on site of Froyle House, Radnor Cliff Crescent, for G. Stone (Folkestone), Ltd., 127 Sandgate Road.

Glasgow.—Housing Committee have agreed that the Scottish Special Housing Association, Ltd., 15 Palmerston Place, Edinburgh, 12, should undertake the development of the Maryhill Barracks site.

Hoddesdon, Herts.—Hurbert C. Leach, Ltd., 131 High Street, Cheshunt, propose the erection of 200 to 300 houses at Ware Road.

Leatherhead, Surrey.—U.D.C. have approved the erection of 16 two-bedroom flatlets and 11 garages at Pound Farm, Fetcham.

Longbenton, Northumb.—W. N. Howe, Ltd., 18 Heaton Road, Newcastle upon Tyne, are to erect houses near Weardale Avenue, Forest Hall.

Manchester.—City Council to invite tenders from specialist firms for design and erection of reinforced concrete frame and foundation work for three 12-storey blocks of flats at Hollyhedge Roundabout, Wythenshawe.

Morpeth, Northumb.—R.D.C. propose 48 houses at Hadston.

Prudhoe, Northumb.—U.D.C. to build 33 houses at West Wylam. The Council's architect is J. M. Angus, 3 Gallowgate, Newcastle upon Tyne.

Salisbury, Wilts.—City Town Planning Committee raises no objections to the erection of two pairs of police houses at Stratford-sub-Castle.

Southend-on-Sea, Essex.—Talbot and White, 34 Clarence Street, are to submit to B.C., for approval, revised plans for the erection of a 15-storey block of 95 luxury flats on site of the former Imperial Hotel, Westcliff.

Sutton and Cheam, Surrey.—M. J. Gleeson, London Road, Cheam, has submitted to B.C., for approval, plans for the erection of 97 flats at Cheam Road.

B.C. have approved plans for the demolition of three houses and the erection of 33 flats and maisonnettes on site at 50-54 Grange Road for George Wimpey and Co., Ltd.; four houses and 33 flats in three three-storey blocks at 48-50 Albion Road and 95-97 Langley Park Road for M. J. Gleeson, Ltd., Bassant Road, London, S.E.18; two houses and 32 flats at 87-89 Worcester Road for H. B. Kingston, Ltd., 145 London Road, Kingston-upon-Thames, Surrey.

Tynemouth, Northumb.—B.C. to consider plans by Cussins (Contractors), Ltd., The Drive, Gosforth, for the erection of a block of 10-storey flats at the corner of Front Street and East Street.

Whitburn, West Lothian.—B.C. are to build 500 houses under their overspill agreement with Glasgow Corporation.

Whitley Bay, Northumb.—Corporation Development Committee have approved plans by M. J. Liddell and Sons, Great North Road, Newcastle upon Tyne, for the erection of six-storey flats on the Whitley Lodge estate.

Wigton, Cumb.—R.D.C. planning to acquire land near Longhead Lane, for the erection of

about 80 terrace houses. Council will ask North-Eastern Housing Association, Windsor Terrace, Newcastle upon Tyne, to obtain tenders for the work.

Windsor, Berks.—B.C. have approved the demolition of 21 properties at Jutland Lane and Dedworth Road and the erection on sites of 60 flats in four blocks.

PLAYING FIELDS, PARKS, ETC.

Dudley, Worcs.—B.C. recommended to apply for sanction to borrow £4,000 for provision of a playing field at Sycamore Green schools.

ROADS, BRIDGES AND SITE WORKS

Bristol.—City Council recommended to apply for sanction to borrow £21,000 for the improvement and reconstruction of Ridgeway Lane, Whitechurch, and £19,684 for the improvement of Vale Lane and Headley Lane; approve layout plans for the provision of parking spaces for 980 cars in seven areas. Estimated cost £4,210.

Dudley, Worcs.—B.C. recommended to apply for sanction to borrow £3,545 for provision of a car park in the Bourne Street area.

Lanarkshire.—C.C. propose to reconstruct the whole length of A.8, between Baillieston and Newhouse, with dual carriageways and junction improvements. Work is expected to start next year.

Liverpool.—City Council recommended to apply for sanction to borrow £22,701 for reconstruction of carriageways and footways in Skelthorne Street (Lime Street to Copperas Hill), Copperas Hill (Hawke Street to St. Vincent Street), and Great Howard Street (Chadwick Street to Leeds Street); paving of footways in front of new buildings in Walsley Street, Boundary Street, Shadwell Street and Mould Street; and construction of a street end crossing in Mill Lane, Wavertree (east side of Westlead Road).

Maidenhead, Berks.—Ministry have approved improvement scheme at Grauford Arch to eliminate the traffic hazard of six roads meeting under the railway bridge for B.C. Estimated cost £30,000.

Oswestry, Salop.—B.C. have approved, in principle, scheme for widening of Willow Lane. Estimated cost £35,000.

Portsmouth.—M.T. have granted City Council £37,405 towards cost of widening Arundel Street (in two sections). Total estimated cost £75,510.

Sheffield.—City Engineer has been authorised to proceed with the new prescribed carriage-way marking in conjunction with every "Halt" sign in the City, and for the illumination of all "Slow" signs. Total estimated cost £2,640.

Sunderland.—B.C. recommended to widen Newcastle Road at a cost of £36,500.

Surrey.—C.C. propose the reconstruction of London Road Bridge and the widening of London Road from its junction with Whitton Road to its junction with Station Approach. Work is expected to begin at the end of the year.

Yarmouth, Norfolk.—C.C. propose provision of a new road and bridge over the River Yare. Estimated cost £196,000.

City Engineer to be authorised to carry out ancillary street works at junction of St. Mary's Road with Church Road and Speke Road. Estimated cost £4,011.

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Blandford, Dorset.—B.C. recommended to approve revised scheme prepared by W. H. Radford and Son, consulting engineers, 57 Goldsmith Street, Nottingham, for improvement of sewage disposal works. Estimated cost £20,000.

Bristol.—City Council recommended to apply for sanction to borrow £46,120 for the relief of flooding in the Wells Road area. Knowle.

Kettering, Northants.—R.D.C. to consider sewerage and sewage disposal schemes for Great Oakley, Little Oakley and Pipewell. Estimated cost £71,000.

Sunderland, Dur.—B.C. seeking loan sanction for £313,408 for the construction of a sewer in Shields Road.

CONTRACTS

Full details of the Contracts marked * will be found in our Advertisement Columns.

BUILDING AND DECORATING

(See also Housing Schemes)

Abercarn, Mon.—Construction of approx. 260 lin. yd. of pennant stone walling, together with the fixing of mild steel ornamental round bar railings, supplied by the Council, near the subway at Newbridge, on route A.472, for U.D.C. Documents from the Engineer and

Surveyor, Council Offices, Abercarn. Tenders by Sept. 27.

Audenshaw, Lancs.—Improvement works to six cottage houses for U.D.C. Applications to the Clerk, Council Offices, Ryecroft Hall, Audenshaw. Tenders by Sept. 30.

Barnstaple, Devon.—Following for B.C.: (a) Plumbing work; (b) electrical work; (c) supply of fireplace surrounds, grates and back-boilers for improvement works to houses at Mill Road and Pottington Road. Documents from the Borough Surveyor, The Castle, Barnstaple. Tenders by Sept. 22.

Belfast.—Following for City Council: (a) Supply and erection of structural steelwork and (b) supply and delivery of reinforcing steel at Institute of Further Education, Tower Street. Documents from the Education Architect's Department, 40 Academy Street, Belfast, 1. Tenders by Oct. 6.

Bewdley, Worcs.—Construction of a block of 10 brick garages on the Springhill housing estate, Wribbenhall, for B.C. Documents from J. E. Sheen, borough surveyor, Municipal Offices, Bewdley. Tenders by Sept. 24.

Birmingham.—Small alterations, general repairs and interior decorations at 180 Corporation Street, Birmingham, 4. Documents from the City Estates Officer, Bush House, 65 Broad Street, Birmingham. Deposit £2 2s. cheque. Tenders by Sept. 23.

Bournemouth, Hants.—Erection of one detached caretaker's house at Christ the King Roman Catholic School, Kinson, for B.C. Documents from Borough Architect's Office (room 106), Town Hall, Bournemouth. Deposit £2 2s. Tenders by Oct. 7.

Breconshire.—Secondary school at Penlan for C.C. Applications by Sept. 24. Deposit £3 3s.

Bury St. Edmunds.—Following for B.C.: Construction of bathrooms and the installation of hot water heating systems, including the supply of tiled fireplace surrounds, grates, baths and sinks where necessary to nine houses in Priors Road, Springfield Avenue, Grove Park and Vinery Road. Documents from Borough Engineer, Borough Offices, Bury St. Edmunds. Tenders by Sept. 30.

Castletown, I. of M.—Alterations and repairs to 13 and 15 Hope Street, Castletown, for Town Commissioners. Written applications to Davidson, Marsh and Co., 16 Athol Street, Douglas, by Sept. 17.

Cheltenham, Glos.—Reconditioning and modernisation of the dwelling houses, 10 Marle Hill Parade and 61 St. Paul's Street North for B.C. Documents from J. F. Ursell, chief public health inspector, Municipal Offices, Cheltenham. Deposit £2 2s. each contract, cheque payable to Cheltenham Corporation. Tenders by Sept. 26.

Coleraine, Londonderry.—Painting external walls, woodwork, entrance gates, etc., at the Council Offices, 1 Ferryquay Street, Coleraine, for R.D.C. Documents from Council's Engineer, Council Offices. Tenders by Oct. 1.

Dunfermline, Fife.—All trades basis for repairs to and retiling of the swimming pond at Carnegie Central Baths, for City Council. Documents from the Burgh Architect, 6 Abbot Street, Dunfermline. Tenders by Sept. 28.

Essex.—Erection of Harlow Civil Defence Centre for C.C. The work will be in traditional construction, estimated cost £7,750. Applications to H. Conolly, county architect, County Hall, Chelmsford, by Sept. 17.

Flint.—Erection of branch library at Pentre, Bagillt, for B.C. Documents from the office of the Borough Engineer and Surveyor, Municipal Offices, Earl Street, Flint. Deposit £2 2s. Tenders by Oct. 3.

Great Yarmouth, Norfolk.—Reconstruction of Central Library for B.C. Deposit £1 ls. Tenders by Oct. 4.

Halifax, Yorks.—Alterations and conversion at 30 Union Street for B.C. Apply to the Borough Engineer, Crossley Street, Halifax, by Sept. 17.

Hailsham, Sussex.—Improvement work to the existing workshop at Leap Cross depot, Hellingly, for R.D.C., consisting mainly of new external brick walls. Documents from the Surveyor, Cortlandt, Hailsham. Tenders by Oct. 3.

Hemel Hempstead, Herts.—Erection of a public convenience adjacent to the shopping centre, Stonygrove, Warners End, Hemel Hempstead, for B.C. Documents from Borough Engineer, High Street, Hemel Hempstead. Tenders by Oct. 3.

Holland.—Erection of a primary school and school house at Sutton St. Nicholas (Lutton), Spalding, for C.C. Documents from the County Architect, County Hall, Boston, Lincs. Tenders by Oct. 1.

Inverness-shire.—Alterations to the police inspector's house, Fort William, for C.C., comprising builder, plumber, carpenter, painter and electrical works. Applications to the County Architect, The Castle, Inverness, by Sept. 17.

Isle of Man.—Alterations to government office, Douglas, for the Isle of Man Government Property Trustees. Applications to

Architect and Planning Officer, Murray House, Douglas. Deposit £2 2s., payable to Government Treasurer. Tenders by Sept. 27.

Kesteven.—Erection of sub-divisional police headquarters, two flats and two pairs police constables' houses, Bourne, for C.C. Applications to the County Architect, County Offices, Sleaford, Lincs., by Sept. 21. Tenders by Oct. 20.

Lanarkshire.—Painter work at St. Cuthbert's R.C. Old School, Burnbank, for C.C. Written application to D. G. Bannerman, county architect, 34 Albert Street, Motherwell, by Sept. 17.

Lancashire.—Following for C.C.: (a) Building contractors for alterations in traditional construction at Kirkham and Wesham County School to form kitchen and dining room; (b) sub-contractors for additions to existing heating installations at Leigh Fire Station. Applications to the County Architect, P.O. Box 26, County Hall, Preston, by Sept. 19.

Lincolnshire.—Major schemes of internal redecoration at the undermentioned hospitals for Lincoln No. 3 Hospital Management Committee: Harleston Hall Hospital, Lincoln; Caistor Hospital, Caistor; St. Peter's Hospital, Bourne. Documents from Group Secretary, Cross O'Cliff Court, Bracebridge Heath, Lincoln. Tenders by Oct. 1.

Liverpool.—Rebuilding of C annexe, Burton Manor College, Wirral, for City Council. Documents from City Architect, Blackburn Chambers, Dale Street, Kingsway, Liverpool, 2. Deposit £2 2s., payable to City Treasurer. Tenders by Sept. 30.

Lisnaskea, Fermanagh.—Design, supply, fabrication, and erection of structural steelwork for a factory extension at Lisnaskea for Ministry of Commerce. Tenderers should note that tenders will not be considered unless accompanied by steelwork designs. Documents from Room 14, Chichester House, 64 Chichester Street, Belfast, 1. Tenders by Sept. 26.

Littleport, Cambs.—Construction of a swimming pool Parson's Lane, for Parish Council. Tenders by Oct. 8.

Manchester.—Supply and erect one greenhouse for City Council. Tenders by Oct. 4.

Neath, Glam.—Cleaning down and painting of 142 25ft. mounting height steel street lighting columns on the main roads for B.C. Documents from the Borough Engineer, Gwyn Hall, Neath. Tenders by Sept. 30.

Newmarket, Cambs.—Twelve additional lock-up garages to be built in traditional construction at a site off Valley Way, Houldsworth Valley estate, Newmarket, for U.D.C. The work to be carried out includes the whole of the site preparation and drainage. Documents from P. D. Lees, architect, Council Offices, Severs House, Newmarket. Deposit £2 2s. Tenders by Sept. 23.

Northern Ireland.—Construction of a sterilising room, alterations to form a calorifier house, the construction of ducts for hot and cold water services, and general builders' attendances for a scheme of engineering services at Lurgan and Portadown Hospital for Hospitals Authority. Documents from T. T. Houston and Co., architects, 26 College Gardens, Belfast. Deposit £3 3s. Tenders by Sept. 26.

Northumberland.—Construction of office, stores and garage blocks, with all services, at Royal Tweed Bridge, Tweedmouth, for C.C. Documents from the County Surveyor, Phoenix House, Queen Street, Newcastle upon Tyne, 1. Tenders by Sept. 26.

Southampton.—Erection of shops and public conveniences at East Street for B.C. Written applications to Borough Architect, Civic Centre, Southampton, by Sept. 24. Tenders by Oct. 31.

Southport, Lancs.—Conversion of 1 Scarisbrick Street into two flats, for B.C. Documents from the Borough Architect and Town Planning Officer's Department, 99/105 Lord Street, Southport. Deposit £2 2s. Tenders by Oct. 14.

Southwick, Staffs.—Erection of a new stadium at Hadley playing fields, Waterloo Road, for B.C. The work comprises three separate blocks as follows: (1) Changing rooms, with ancillary accommodation and a covered stand for approximately 750 persons; (2) gymnasium and ancillary accommodation; (3) groundsman's house. Written applications to the Borough Engineer and Surveyor, Council House, Smethwick, 40. Deposit £2 2s., cheque payable to Borough Treasurer. Tenders by Oct. 17.

Stanley, Yorks.—Fixing of 72 replacement fireplaces on various Council estates for U.D.C. Documents from D. Walker, Council Offices, Coach Road, Outwood, near Wakefield. Tenders by Sept. 26.

Stoke-on-Trent, Staffs.—Proposed public conveniences, Stone Road, Trent Vale, for City Council. Written applications for the particulars to the City Architect, Kingsway Chambers, Stoke-on-Trent, by Sept. 19. Deposit £2. Tenders by Oct. 12.

Stourbridge, Wores.—Alteration and extension to the Council House, together with

incidental work, for B.C. Documents from H. W. Morris, borough engineer and surveyor, Council House, Stourbridge. Deposit £2 2s. Tenders by Oct. 8.

Stourbridge, Wores.—Public conveniences at St. John's Road, Westwood Avenue and Oakfield Road, for B.C. Documents from H. W. Morris, borough engineer and surveyor, Council House, Stourbridge. Deposit £2 2s. Tenders by Oct. 7.

Strood, Kent.—Erection of 12 garages in Higham and Shorne for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Frindsbury Hill, Strood. Deposit £2 2s. Tenders by Oct. 10.

Stroud, Glos.—Supply and erection of concrete prefabricated buildings at London Road depot for U.D.C. Documents from the Engineer and Surveyor, Council Chambers, High Street, Stroud. Tenders by Sept. 28.

Sutton and Cheam, Surrey.—Construction of a library, Cheam, for B.C. Apply by Sept. 28. Deposit £2 2s. Tenders by Nov. 2.

Swindon, Wilts.—Erection of garages at Penhill, Pinehurst and Walcot, stores and drying areas at Walcot, for B.C. Applications to the Borough Architect, Civic Offices, Swindon, by Sept. 23.

Thingoe, Suffolk.—Following for R.D.C.: Chedburgh—two bungalows and four houses; Chevington—two bungalows and two houses; Rougham—two houses; Whepstead—two bungalows and two houses. Submit names to J. H. Warren, architect, 5 Angel Hill, Bury St. Edmunds, by Sept. 16. Deposit £2 2s.

Whiston, Lancs.—Alterations and extensions to the maintenance workshop, at Delph Lane, Whiston, for R.D.C. Documents from Engineer and Surveyor, Council Offices, Delph Lane, Whiston, Prescot, Lancs. Tenders by Sept. 22.

DEMOLITION

Amphill, Beds.—Demolition of 15-21 Church Road, Westoning, for R.D.C. Documents from the Engineer and Surveyor, The Limes, 12 Dunstable Street, Amphill, Bedford. Tenders by Sept. 21.

Birmingham.—Demolition of an old building at the works of the salvage department situate at Montague Street, Bordesley, for City Council. Documents from the General Manager, Salvage Department, Civic Centre, Broad Street, Birmingham, 1. Tenders by Sept. 30.

Breconshire.—Demolition of Ystrad Bridge and Castle Bridge, Ystradgynlais, for C.C. Tenders by Oct. 3.

Caterham and Warlingham, Surrey.—Demolition of air raid shelters for U.D.C. Tenders by Sept. 30.

Isle of Wight.—Demolition of Brooklands Cottage, Station Road, Freshwater, for C.C. Documents from County Surveyor and Planning Officer, Hazards House, High Street, Newport, I. of W. Tenders by Oct. 10.

ELECTRICAL

Belfast.—Electrically operated lift installations at proposed college of art for City Council. Documents from the Education Architect's Department, 40 Academy Street, Belfast, 1. Tenders by Oct. 6.

Castletown, I. of M.—Electrical installation in connection with the Castle Rushen High School now in course of erection. Documents from Davidson, Marsh and Co., architects, 16-18 Athol Street, Douglas. Deposit £2 2s. Tenders by Sept. 20.

Haslingden, Lancs.—Rewiring of power circuits and incidental works to 44 houses at Free Lane, Helmshore, and Cedar Avenue, for B.C. Documents from the Borough Surveyor, Municipal Offices, Bury Road, Haslingden. Tenders by Oct. 8.

Hull.—Following for City Council: (a) Electrical installation; (b) low pressure hot water heating installation at the Central Library extension. Documents from the City Architect, Guildhall, Hull. Deposit £2 each, payable to the City Treasurer. Tenders by Sept. 28.

Liverpool.—Altering and extending lifts at police headquarters, Hardman Street, for City Council. Documents from City Engineer and Surveyor, Municipal Buildings, Liverpool. Tenders by Oct. 12.

Lowestoft, Suffolk.—Electrical installation of 50 houses in course of erection, Gunton estate, for B.C. Documents from the Borough Engineer's Office, 49 High Street, Lowestoft. Deposit £1 1s. Tenders by Sept. 23.

Manchester.—Electrical installation to the photographic, fingerprint and Manchester C.R.O. sections at St. Joseph's Police Buildings, Longsight, for City Council. Documents from City Architect, P.O. Box 488, Town Hall, Manchester. Tenders by Oct. 3.

Manchester.—Supply and erection of an electric goods lift to the clothing stores section, Hyde Road Depot, Ardwick, for City Council. Documents from the General Manager, Corporation Transport Department, 55 Piccadilly, Manchester, 1. Tenders by Sept. 20.

FENCING

Belfast.—Alterations to brick gateway entrance, including new gates at Sir Thomas and Lady Dixon Park, Dunmurry, for City Council. Documents from the City Architect's Office, Room 53, City Hall, Belfast, 1. Tenders by Sept. 20.

Cardiff.—Provision and erection of gates and chain link fencing, Western Cemetery, Ely, for City Council. Documents from the City Surveyor, Guildhall, Cardiff. Deposit £2 2s., cheques payable to Corporation. Tenders by Oct. 5.

Grantham, Lancs.—Supplying and erecting approx. 6,500yd. of concrete post and strained wire fencing at Earlsfield estate, for B.C. Documents from the Borough Engineer and Surveyor, Guildhall, Grantham. Tenders by Sept. 30.

Peterborough.—Supply of 1,000 lin. yd. of cleft chestnut fencing, together with 375 chestnut posts, for C.C. Documents from the County Surveyor, County Offices, Bridge Street, Peterborough. Tenders by Oct. 1.

Surbiton, Surrey.—Erection of various types of new fencing at Fishponds estate for B.C. Documents from the office of R. Thirlway, borough engineer and surveyor, Council Offices, Ewell Road, Surbiton. Tenders by Sept. 30.

GAS AND WATER SUPPLY

Aberdare, Glam.—Service reservoir for U.D.C. Deposit £3 3s. Tenders by Oct. 17.

Atcham, Salop.—West Atcham water scheme, Pontesford Hill extensions, for R.D.C., including the construction of approximately 2,147yd. of water main, entailing excavation and the provision, laying and jointing of 3in. spun-iron pipes with Tyton joints and 2in. heavy gauge Alkathene pipes with compression joints. Documents from the office of J. R. Sackett, engineer and surveyor, 24 St. John's Hill, Shrewsbury. Deposit £1 1s. Tenders by Sept. 30.

Ayrshire.—Following for C.C.: New 4in. diameter water mains, Craigie Parish—(1) from Plewland to Craigie, 1,720yd.; (2) from Laigh Langside to Underhills, 1,330yd. Intake works and laying asbestos-cement main—3 intake works on Greeto Water, Largs, and new 8in. diameter main to Haylie reservoir, Fairlie, 3,200yd. Applications to Water and Drainage Engineer, County Buildings, Ayr.

Ballymena, Antrim.—Tully-Broughshane-Ballyloughan water supply, contract 10, for R.D.C., including the supply, distribution, laying and jointing of approximately 8,850 lin. yd. of 8in. diameter, 9,440 lin. yd. of 6in. diameter, 1,625 lin. yd. of 5in. diameter, 3,385 lin. yd. of 4in. diameter, and 1,935 lin. yd. 3in. diameter spun-iron pipes, valves and specials, together with the construction of two 100,000-gallon concrete reservoirs in the townlands of Rathkeel and Kirkinriola. The proposed works are situated to the north-east of Ballymena. Documents from the offices of R. Ferguson and S. McIlveen, consulting engineers, 15 College Gardens, Belfast, 9, or the offices of the R.D.C., Ballymena. Deposit £5 5s. Tenders by Sept. 30.

Blackpool, Lancs.—Garstang borehole scheme for Fylde Water Board. Tenders by Oct. 18.

Blackpool, Lancs.—Broughton borehole scheme for Fylde Water Board, involving the sinking of 18in. diameter boreholes to a depth of 500ft. at the following sites, north of Preston: (g) Midge Hill; (h) White Horse Lane; (k) Myerscough Hall Lane; (m) Catterall Lane. Documents from Engineer to the Board, Sefton Street, Blackpool. Tenders by Oct. 14.

Enniskillen, Fermanagh.—Scaffog Cross to Drumrainey Bridge and district water scheme for R.D.C.: Supplying and laying of asbestos-cement water mains and specials as follows—(1) Scaffog Cross to Towland of Oakfield—4,184yd. of 4in. asbestos-cement class "C"; (2) road fork at Robin Bar to Drumrainey Bridge—1,834yd. of 3in. asbestos-cement, class "C." Documents from the Council Offices, Cornagrade, Enniskillen. W. D. R. and R. Taggart, consulting engineers, 13 College Gardens, Belfast, 9. Deposit £5 5s. Tenders by Sept. 30.

Mildenhall, Suffolk.—Moulton area water supply for R.D.C., including the laying of some 4,900yd. of 6in. diameter cast-iron water mains in the parish of Kennett, in the county of Cambridgeshire, and the parishes of Herringwell and Freckenham, in the county of Suffolk. Applications to J. H. Haiste and Partners, consulting engineers, 44/46 Bridge Street, Peterborough. Deposit £3 3s., cheque payable to R.D.C. Tenders by Oct. 10.

Rushden, Northants.—Ditchford scheme, contract 7, for Higham Ferrers and Rushden Water Board, including the laying of about 700yd. of concrete intake ducts in water-bearing gravels, and the construction of reinforced concrete storage, treatment and filter tanks, together with administration building and access works for a water treatment plant with a capacity of 750,000 gallons per day, at

Rushden. Documents from A. G. Growdy, clerk to the board, Council Buildings, Rushden, or at the office of Binnie, Deacon and Gourley, engineers, Artillery House, Artillery Row, Westminster, London, S.W.1. Deposit £5. Tenders by Oct. 7.

Staffordshire.—Tittesworth reservoir scheme, contract 41, for Potteries Water Board, comprising the laying of approx. 7,600 lin. yd. of 30in. nominal diameter steel bitumen lined and sheathed water main with Viking Johnson couplings from Tittesworth reservoir to Ladderedge reservoir, near Leek. Two separate tenders are required: (1) Tender with variations in wages and materials; (2) tender on fixed-price basis without variations in wages and materials. Documents from C. V. Brown, engineer and manager and clerk to the board, Albion Street, Hanley, Stoke-on-Trent. Deposit £5 5s., cheque. Tenders by Oct. 10.

Swaffham, Norfolk.—Laying of 635yd. of 2in. g.w.i. water main in the parish of Foulton for R.D.C. Documents from Rural Council Offices, Market Place, Swaffham. Deposit £1 ls. Tenders by Sept. 17.

***Warwickshire.**—Scraping of small water mains, for North East Warwickshire Water Board. Deposit £2 2s. Tenders by Sept. 29.

HARBOURS, PIERS AND SEA DEFENCE WORKS

Wentloog, Mon.—Grouting of 2,400 sq. yd. of stone pitching with bituminous asphalt grout on the sea wall at Peterston Wentloog, near Newport, for Usk River Board. Documents from G. McLeod, engineer, The Croft, Caerleon, Mon. Tenders by Sept. 30.

HEATING AND VENTILATING

Abingdon, Berks.—Hot water installations, 153 dwellings, Boxhill estate, for B.C. Work provides for installing combined hot and cold water tanks with immersion heaters and ancillary works. Applications to Borough Engineer, The Abbey House, Abingdon, by Sept. 17. Tenders by Oct. 7.

Altrincham, Ches.—Renewal of the cast-iron low pressure heating boilers at the Central Library and Stamford Hall, and the replacement of the existing mechanical stokers by suitable oil-burning equipment for B.C. The existing installation may be inspected by appointment with the Chief Librarian or Stamford Hall Manager. Documents from E. Graham Thomas, town clerk, Town Hall, Altrincham. Tenders by Sept. 22.

***Cornwall.**—Heating, ventilation, electrical services, etc., Camborne police station, for C.C. Applications by Sept. 26.

Omagh, Tyrone.—Complete heating installation at Raveagh, Eskra, Omagh, for Mr. S. McF. Lyons. Documents from R. H. Beck, surveyor and planning consultant, 6 Market Street, Omagh. Deposit £3 3s. Tenders by Sept. 24.

HOUSING SCHEMES

Aberystwyth, Cards.—Erection and completion of nine flats in two three-storey blocks in traditional construction together with drains, footways and all other ancillary works, on a site at Thespian Street, for B.C. Documents from the Borough Surveyor and Water Engineer, Public Works Department, Park Avenue, Aberystwyth. Deposit £3 3s. Tenders by Oct. 24.

Chislehurst and Sidcup, Kent.—Erection of 82 dwellings, 45 garages and community room, Northcote Road estate, for U.D.C. Applications to Engineer and Surveyor, Manor House, Sidcup. Deposit £3 3s.

Coleraine, Londonderry.—Twenty-three houses and five garages at Lyttlesdale, Garvagh, for R.D.C. Documents from Crofton Dalzell, quantity surveyor, Northern Bank Buildings, Coleraine. Deposit £5 5s. Tenders by Oct. 1.

Consett, Dur.—Erection of a pair of semi-detached houses, together with roadworks, at Cobden Street for Durham County Water Board. Documents from A. C. Wildsmith, chief engineer, Neville Court, Durham. Deposit £2 2s. Tenders by Oct. 5.

***Dartford, Kent.**—Erection of flats, houses, shops and garages at Temple Hill neighbourhood unit for B.C. Deposit £2 2s. Tenders by Nov. 14.

Droxford, Hants.—Following for R.D.C.: A pair and a block of six old people's bungalows and the construction of ancillary site works comprising approx. 350 super. yd. of roadway; 180 super. yd. of footpaths; 420ft. run of drains; grass verges and sewage disposal plant to serve the above bungalows, at Bull Lane, Waltham Chase, Shedfield. Documents from Engineer and Surveyor, Northbrook House, Bishop's Waltham, Southampton. Deposit £2 2s. Tenders by Oct. 10.

Fareham, Hants.—Six houses in one contract (four at Bellfield estate extension, Tichfield and two at Hunts Pond Road, Locks Heath) for U.D.C. Documents from the Engineer and Surveyor, Westbury Manor, Fareham. Deposit £2. Tenders by Sept. 28.

***Frome, Som.**—Erection of houses, etc., at Station Road for R.D.C. Apply by Sept. 23. Deposit £2 2s.

Gelligaer, Glam.—Erection of 10 three-bedroom houses at Southend, Pontllynn, and six three-bedroom houses at Heol Evan Wynne, Pontllynn, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Hengoed. Deposit £3 3s. Tenders by Sept. 30.

Horncastle, Lincs.—Twenty houses, 12 bungalows, 16 flats, and roads and sewers at Tattershall, for R.D.C. Applications to W. Saunders and Partners, 24 Castle Gate, Newark-on-Trent, Notts. Deposit £3 3s. Tenders by Oct. 6.

Hull.—One hundred and eighty-eight dwellings and 51 garages, Boothferry Estate, for City Council. Documents from the City Architect, Guildhall, Hull. Deposit £2, payable to City Treasurer. Tenders by Sept. 23.

Isle of Wight.—Two blocks of flats and incidental works at Heytesbury Road, Yarmouth, for R.D.C. Documents from E. L. Smith and Son, architects, Melville Chambers, Sandown, I. of W. Deposit £2 2s. Tenders by Oct. 3.

Magherafelt, Londonderry.—Following for R.D.C.: (1) Six houses at Desertmartin, Co. Londonderry; and (2) four houses at Tamlaght (Coagh), County Londonderry. Documents from W. and M. Given, architects, 1 Water-side, Coleraine. Deposit £3 3s. each contract. Tenders by Sept. 29.

Manchester.—Erection of the following for City Council: (Contract 346) Crossaeres Road, Wythenshawe, 12 dwellings; (349) Handforth, 720 dwellings. Documents from Director of Housing, Town Hall, Manchester, 2. Tenders by Sept. 29.

Middlesbrough, Yorks.—Easterside — 32 dwellings and 11 garages for B.C. Documents from Borough Engineer, Council Offices, Middlesbrough. Deposit £2 2s. Tenders by Oct. 10.

Omagh, Tyrone.—Twelve bungalows, together with ancillary works, at Arvalee, Omagh, for R.D.C. Documents from R.D.C. Offices, Lisnamallard, Omagh. Deposit £2 2s. Tenders by Sept. 30.

Portsmouth.—Erection of nine houses at Prince George Street for City Council. Applications to the City Architect, 1 Western Parade, Portsmouth, by Sept. 19. Deposit £1.

Reading, Berks.—One hundred and twenty-three dwellings and 40 garages at Bulmershe Estate, near Reading, for B.C. Documents from Borough Architect, Town Hall, Reading. Deposit £2 2s. by cheque payable to Corporation. Tenders by Oct. 7.

***St. Ives, Hunts.**—Twenty-eight bungalows at Cemetery Road for B.C. Deposit £2 2s. Tenders by Oct. 11.

Shrewsbury, Salop.—Following for B.C.: (a) Six houses, two bungalows, two shops, 19 garages, and alterations to Monkmoor Hall Farm to provide new dairy and calf boxes (the works are on several sites all in the Crowmoor district); (b) 67 dwellings, 19 garages and one shop at Ditherington, Shrewsbury; (c) 12 flats in three storeys, 12 three-storey houses and one shop with maisonnette over at New Street, Shrewsbury. Documents from the office of the Borough Surveyor, Guildhall, Shrewsbury. Deposit £2 2s. each. Tenders by Sept. 21.

Strood, Kent.—Erection of aged persons' bungalows as follows for R.D.C.: Eight bungalows, Lower Stoke; seven bungalows, Greenfields, Wainscott. Documents from the Engineer and Surveyor, Council Offices, Frindsbury Hill, Strood. Deposit £5 5s. Tenders by Oct. 10.

Sunderland, Dur.—Erection of 238 dwellings at Town End Farm Estate for B.C. Documents from Borough Architect, Grange House, Stockton Road, Sunderland. Deposit £2 2s., cheques payable to Corporation. Tenders by Sept. 26.

Thirsk, Yorks.—Eight houses on Sandhutton and South Kilvington housing estates together with the necessary house drainage, paths and fences and a small amount of private roadworks, for R.D.C. Documents from Needham, Thorp and White, 5 High Petergate, York. Deposit £4 4s., payable to Corporation. Tenders by Sept. 24.

***Wandsworth.**—Housing at Clapham for B.C. Apply by Sept. 16.

Wolverhampton, Staffs.—Thirty dwellings of various types at Coronation Road, Heath Town, for B.C. The foundations will be reinforced concrete rafts. Applications to the Borough Engineer, Town Hall, Wolverhampton, by Sept. 19. Deposit £2 2s.

***Worcester.**—One hundred and eight dwellings at Warndon Estate for City Council. Deposit £3 3s. Tenders by Oct. 17.

***Worcester.**—Ten dwellings for City Council. Deposit £3 3s. Tenders by Oct. 17.

***Yeovil, Som.**—Forty-two houses, 12 bungalows and six garages for B.C. Apply by noon, Sept. 27.

York.—Eight houses at Naburn Lane, Fulford, for City Council. Documents from

E. Firth, city architect, 8 St. Leonard's Place, York. Deposit £3, cheques payable to Corporation. Tenders by Oct. 7.

MATERIALS AND SUPPLIES

***Bromsgrove, Worcs.**—Supply of dustbins for U.D.C. Tenders by Sept. 24.

***Coventry.**—Supply of brushes, rags, rope, etc., for City Council. Tenders by Oct. 5.

Great Yarmouth.—Supply of materials to be used in connection with the installation of hot water services to pre-war houses for B.C. Documents from the Housing Manager, 11 Hall Quay, Great Yarmouth. Tenders by Oct. 3.

Manchester.—Supply of the following during the period Jan. 1 to Dec. 31, 1961, for City Council: Asphaltic bitumen road emulsion; bollard and transport batteries; brushmaking material; calcium chloride solution; cinders; fine cold asphalt; glazed ware sewer pipes; hire of motor wagons; limestone chert; reinforcement fabric and dowel bars; road danger lamps; ready mixed concrete; salt for snow clearance; slate filled bitumen; street grids and castings; waterproof paper for contracting; wetmix. Documents from the City Surveyor, Town Hall, Manchester, 2. Tenders by Sept. 20.

Manchester.—Supply of fluorescent tubes during the period Nov. 1, 1960, to Oct. 31, 1961, for City Council. Documents from City Surveyor, Town Hall, Manchester, 2. Tenders by Sept. 20.

***Middlesbrough, Yorks.**—Supply of wood casement windows for B.C. Tenders by Sept. 30.

PLANT AND MECHANICAL TRANSPORT

***Breckshire.**—Supply of plant for C.C. Tenders by Oct. 3.

Dundee, Angus.—Supply of two 12-18 cu. yd. compression-type refuse collection vehicles for City Council. Documents from the Cleansing Superintendent, 28 East Dock Street, Dundee. Tenders by Sept. 30.

Dunlaoghaire, E're.—Supply and erection of two 34-ton electric cranes at Dunlaoghaire harbour, for Office of Public Works. Documents from the Secretary, Office of Public Works, 51 St. Stephen's Green, Dublin. Tenders by Oct. 7.

Magherafelt, Londonderry.—Supply of a two-ton carrying capacity motor lorry for R.D.C. Documents from Clerk to Council, Council Offices, Magherafelt. Tenders by Sept. 28.

PLAYING FIELDS, PARKS, ETC.

Ballymena, Antrim.—Construction of two hard tennis courts, complete with siteworks, fencing, etc., at the new Cullinbackey Playing Fields for the Committee. Documents from McCutcheon and Wilkinson, architects, 34 High Street, Ballymena. Deposit £5 5s. Tenders by Sept. 26.

RIVER AND FLOOD PREVENTION WORKS

***Leigh, Lancs.**—Construction of low culverts under Holden Road for Mersey River Board. Deposit £2 2s. Tenders by Oct. 24.

Queensferry, Ches.—Construction of a pump-house and sub-station, concrete culverts and waterways, and tidal outfall with steel sheet piling, at Queensferry, approx. five miles west of Chester, for Dee and Clwyd River Board. Documents from Rofe and Raffety, consulting engineers, 9 Brewer's Green, Westminster, London, S.W.1. Deposit £5 5s., cheque payable to the Board. Tenders by Oct. 7.

ROADS, BRIDGES AND SITE WORKS

***Altrincham, Ches.**—Surfacing of footways for B.C. Tenders by Sept. 24.

Amptill, Beds.—Construction of footpaths, verges and ancillary works at the Trunk Furlong estate, Aspley Guise, for R.D.C. Documents from the Engineer and Surveyor, The Limes, 12 Dunstable Street, Amptill, Bedford. Deposit £2 2s. Tenders by Oct. 13.

Bexhill, Sussex.—Resurfacing of Devonshire Road for B.C., using 4in. tarmacadam base course with a 1in. carpet and including breaking-out of existing surface, comprising a 2in. thickness of tarmacadam and a 4in. thickness of woodblock paving; approx. 5,700 sq. yd. Documents from the Borough Surveyor, Town Hall, Bexhill. Deposit £2 2s. Tenders by Sept. 24.

Bridgwater, Som.—Colley Lane industrial site: Construction of roads and sewers, phase I, for B.C., comprising approx. 2,530 sq. yd. of 9in. reinforced concrete carriageway, 1,450 sq. yd. of tarmacadam carriageway, 1,450 sq. yd. of tarmacadam footpath, 640 lin. yd. of 6in.-36in. diameter sewers, 650 lin. yd. of 3in. and 6in. water mains, and incidental works. Documents from Borough Engineer, Town Hall, Bridgwater. Deposit £2 2s. Tenders by Sept. 24.

***Bridgwater, Som.**—Durleigh road widening for B.C. Deposit £2 2s. Tenders by Sept. 30.

*Brighton, Sussex.—Street works for B.C. Tenders by Oct. 4.

*Bristol.—Repairs to pile supports of bridge over entrance to dock for City Council. Tenders by Oct. 5.

Bromley, Kent.—Construction of Baston Road improvement for B.C., comprising 1,903 cu. yd. excavation, laying of 2,945 sq. yd. 9in. reinforced concrete road slab surfaced with 3½in. thick hot-rolled asphalt, 700 lin. yd. granite kerb, 1,573 sq. yd. a.s. paving, 300 lin. yd. 12in. diameter g.s. sewer, 212 lin. yd. dwarf 9in. brick boundary wall, and ancillary works. Documents from the office of the Borough Engineer, Municipal Buildings, Bromley. Tenders by Oct. 6.

*Chigwell, Essex.—Works at Stradbroke Drive for U.D.C. Deposit £2 2s. Tenders by Oct. 4.

*Doncaster, Yorks.—Making-up St. Wilfrid's Road, for B.C. Deposit £3 3s. Tenders by Oct. 15.

Bury, Lancs.—Supply, delivery, and mechanical laying of approximately 9,800 sq. yd. of single-course fine cold asphalt, for B.C. Documents from Borough Engineer, Town Hall, Bury. Tenders by Sept. 24.

Bury St. Edmunds, Suffolk.—Construction of carriageways, footways and surface water sewers at Hospital Road for B.C. The work comprises the laying of 3,500 sq. yd. of base course and wearing course asphalt carriageways, 600 lin. yd. of concrete kerb, 1,125 sq. yd. of concrete paving, 1,265 sq. yd. of grass verges, and 375 lin. yd. of 6in. diameter and 9in. diameter surface water sewers. Documents from the Borough Surveyor, Borough Offices, Bury St. Edmunds. Deposit £2 2s. Tenders by Sept. 27.

*Carlisle, Cumb.—Blackwell Road and St. Nicholas Bridge reconstruction, for City Council. Tenders by Sept. 22.

*Carmarthen, Shire.—Road widening at Moreb A484 for C.C. Deposit £2. Tenders by Sept. 28.

*Chesterfield, Derbys.—Road and sewer contract at Loudsley Green housing estate, for B.C. Apply by Sept. 30.

*Colchester, Essex.—Car park at The Firs, Maldon Road, for B.C. Deposit £2 2s. Tenders by Oct. 3.

Coulson and Purley, Surrey.—Highway improvement, junction of Mitchley Avenue-Mitchley Hill and Rectory Park, Sanderstead, for U.D.C. Documents from H. M. Collins, Council Offices, Purley. Deposit £3 3s. Tenders by Sept. 26.

Coventry.—Widening and reconstruction of Leamington Road, between the junctions with Baginton Road and Thirsk Road, for City Council, including approx. 4,400 sq. yd. lean-mix concrete base and bituminous surfacing, 615 lin. yd. 9in. and 12in. diameter s.w. sewer, kerbing, footway and all ancillary work. Documents from the City Engineer, Council House, Coventry. Deposit £5. Tenders by Sept. 23.

Dartford, Kent.—The Dartford Tunnel—finishing, ventilation buildings and services for Ministry of Transport. Following works, to be comprised in one contract: (1) Furnishing the tunnel, about 1,560yd. long, with a concrete lining, a reinforced concrete road deck with paving and footways, wall finishings and a suspended ceiling; (2) furnishing the open cut approaches, each about 210yd. long, with paved carriageways, footways, precast concrete slab facings and copings, suspended sun visors, etc.; (3) constructing two ventilation buildings with reinforced concrete exhaust shafts and other special features; (4) providing and installing (principally through the engagement of nominated sub-contractors) equipment of electricity distribution, lighting, tunnel services and pumping; (5) ancillary works, including completion of access shafts, passages and pump chambers, and the construction of access roads. Documents from Mott, Hay and Anderson, 9 Idlesleigh House, Caxton Street, Westminster, London, S.W.1, consulting engineers. Deposit £50, cheque payable to the Ministry. Tenders by Oct. 19.

Doncaster, Yorks.—Making-up of part of a private street known as St. Wilfrid's Road (between 67-87, inclusive) for B.C., comprising the construction of approx. 110 lin. yd. of 6in. and 9in. s.w. sewer, 220 lin. yd. of kerb, 875 sq. yd. of coated macadam surfacing, including broken stone foundation, 400 sq. yd. of flagging to footpaths, together with brick manhole, gullies and ancillary works. Documents from the Borough Surveyor, 2 Priory Place, Doncaster. Deposit £3 3s. Tenders by Oct. 15.

Dunstable, Beds.—Making-up of Katherine Drive (extension) for B.C., comprising some 2,000 sq. yd. of bitumen macadam surfacing, 450 lin. yd. stone paving, together with surface water drainage, street lighting and other incidental works. Documents from the Borough Engineer, Municipal Offices, Dunstable. Deposit £2 2s. Tenders by Sept. 30.

*Edinburgh.—Forth Road Bridge, contract 5, road works north of Firth of Forth for City Council. Deposit £30. Tenders by Nov. 15.

Enniskillen, Fermanagh.—Roads improvement scheme, contract 1, Henry Street and Sligo Road, for B.C.: Manufacture and delivery of approx. 4,000 beam units for Ministry of Transport loading over clear spans of 20ft. Documents from the offices of W. D. R. and R. T. Taggart, consulting engineers, 13 College Gardens, Belfast, 9. Tenders by Sept. 30.

Fareham, Hants.—Construction of 70 sq. yd. access road, 1,750 sq. yd. footpath, and 6,050 sq. yd. grassing at Winnards Park Estate, Salisbury, for U.D.C. Documents from Engineer and surveyor, Westbury Manor, Fareham. Deposit £2. Tenders by Sept. 27.

Finchley.—Making-up of Manor cottages approach, London, N.2 (second portion) length 330ft., for B.C. Documents from the office of the Borough Engineer and Surveyor, 294-296 Regents Park Road, London, N.3. Deposit £2. Tenders by Sept. 26.

Gloucestershire.—Bibstone diversion, Cromhall, for C.C. Works consist of the construction of a 330 lin. yd. diversion to the existing road including earthworks, drainage, fencing, 24ft. wide carriageway and ancillary works. Documents from County Surveyor, Quay Street, Gloucester. Deposit £5, payable to C.C. Tenders by Oct. 5.

*Gloucestershire.—Private street works for C.C. Deposit £2 2s. Tenders by Oct. 4.

Gransha, Londonderry.—Carpet coating, approx. 1,234 sq. yd. of areas, comprising the farmyard within the farm buildings at Gransha Hospital, for Londonderry and Gransha Hospital Management Committee. Documents from W. and M. Given, 1 Waterside, Coleraine. Tenders by Sept. 23.

*Hambledon, Surrey.—Site works for six garages for R.D.C. Deposit £2 2s. Tenders by Oct. 10.

Hitchin, Herts.—Construction of soil and surface water sewers, carriageway and kerbing on the Westmill Estate for U.D.C. The work comprises approx. 2,470yd. of 6in. to 18in. sewers (part stoneware and part concrete pipes), together with manholes and appurtenant works, 6,260 sq. yd. of reinforced concrete carriageway and 1,800yd. of concrete kerb. Documents from the Surveyor, Council Offices, Brand Street, Hitchin. Deposit £3 3s. Tenders by Oct. 7.

Midlothian.—Following for C.C.: Strengthening of Elginhaugh Bridge, a three-span masonry arch bridge over River North Esk on Edinburgh-Carlisle trunk road, route A.7, near Eskbank, by construction of reinforced concrete slab over area of bridge deck. Carriageway and footpath surfacing and alteration of Post Office plant are also included in contract. Documents from County Surveyor, 32 Palmerston Place, Edinburgh, 12. Deposit £2 2s. Tenders by Sept. 26.

Kidsgrove, Staffs.—Preparation and surfacing of 1,235 sq. yd. of tarmacadam footpath and 2,675 sq. yd. of concrete slab footpath on two estates for U.D.C. Documents from the Engineer and Surveyor, Town Hall, Kidsgrove. Deposit £1 1s. Tenders by Sept. 21.

*Letchworth, Herts.—District roads programme, for U.D.C. Deposit £3 3s. Tenders by Sept. 30.

*Lindsey.—Improvement, various roads, for C.C. Tenders by Sept. 26.

*Macclesfield, Ches.—Roads and sewers of Hurdfield industrial estate, for B.C. Apply by Sept. 26.

*Morecambe and Heysham, Lancs.—Advance site preparation of Lowlands Road, for B.C. Deposit £2 2s. Tenders by Oct. 1.

Morley, Yorks.—Resurfacing with two-course hot-rolled asphalt, total thickness 3½in., on A.58 Whitehall Road trunk road (Drighlington Crossroads to Cockersdale), an area of approx. 14,000 sq. yd., for B.C. Documents from the Borough Engineer's Office, Town Hall, Morley. Deposit £2 2s. Tenders by Sept. 19.

Neston, Ches.—Construction of access road, concrete bases and other ancillary works in connection with the proposed erection of garages on the Liverpool Road-Raby Park Road housing estate, as under, for U.D.C.: Twelve garages off Hawkins Road and two garages off Shakespeare Road. Documents from the office of the Engineer and Surveyor, Town Hall, Neston. Tenders by Sept. 26.

*Newport, Mon.—Advance preparation works, contract 2, for B.C. Deposit £2 2s. Tenders by Sept. 28.

*Nottinghamshire.—Construction of footbridge over Sandiacre-Stapleford by-pass for C.C. Deposit £5. Tenders by Nov. 4.

Penarth, Glam.—Making-up of roads and footpaths at Cwrt-y-Vil housing estate and garage area at Maple Road for U.D.C., comprising approx. 3,500 sq. yd. of tarmacadam surfacing to carriageway and 2,000 sq. yd. of tarmacadam surfacing to footpaths, and all appurtenant works. Documents from the office of the Engineer and Surveyor, Council Offices, "West House," Stanwell Road, Penarth. Deposit £2 2s. Tenders by Sept. 24.

*Preston, Lancs.—Resurfacing of various streets, for B.C. Deposit £2 2s. Tenders by Oct. 10.

*Reading, Berks.—Oxford Road improvement for B.C. Deposit £2 2s. Tenders by Oct. 10.

Rickmansworth, Herts.—Tarmacadam surfacing at Maple Lodge Works for West Hertfordshire Main Drainage Authority, comprising supply and laying of approx. 2,000 super. yd. of tarmacadam (tarpaving) surfacing, together with ancillary works. Documents from the General Manager, West Hertfordshire Main Drainage Authority, Maple Lodge, Maple Cross, Rickmansworth. Tenders by Sept. 28.

Rochford, Essex.—Making-up of Sutton Court Drive and Warwick Drive (part of), contract 269, for R.D.C. The works consist of a total of 6,575 sq. yd. of 5in. reinforced concrete carriageway, 4,300 cu. yd. of excavation and 1,135 lin. yd. of 6in., 9in., 12in. and 15in. glazed stoneware and concrete surface water sewers, together with manholes and all incidental works. Documents from the Engineer and Surveyor, Council Offices, Rochford. Deposit £5. Tenders by Oct. 6.

Rowley Regis, Staffs.—Proposed extension to Whitehall Gardens for B.C., including the bulk excavation and disposal to Council tip of approx. 6,000 cu. yd. of material and the spreading and levelling of 1,250 cu. yd. on site. Documents from S. G. Wood, borough engineer and surveyor, Municipal Buildings, Old Hill, Staffs. Deposit £2 2s. Tenders by Oct. 5.

St. Albans, Herts.—King Harry Lane improvement for City Council, involving the construction of 3,300 sq. yd. of carriageway in lean-mix concrete, gravel asphalt and bitumen macadam surfacing, 1,620 sq. yd. of a.s. paving, and 830 lin. yd. of kerb, together with ancillary works. Documents from the office of the City Engineer and Surveyor, 16 St. Peter's Street, St. Albans. Tenders by Sept. 29.

Sandown-Shanklin, I. of W.—Reconstructing and making-up of Dracaena Gardens, Shanklin, including kerbing, excavating, ballasting and surfacing of carriageway and footpaths with other incidental works, for U.D.C. Documents from Surveyor's Office, Town Hall, Sandown, I. of W. Deposit £2 2s. Tenders by Sept. 24.

Scotland.—Road works north of Firth of Forth, contract 5, for Forth Road Bridge Joint Board. Work includes: (1) Approx. 3½ miles of dual carriageway approach roads and four miles of connecting roads; (2) 10 reinforced concrete bridges; (3) 600ft. long reinforced concrete viaduct; (4) 1,000ft. long twin tunnels. Documents from Mott, Hay and Anderson, 14 Melville Street, Edinburgh, 3. Deposit £30, by cheque payable to Board. Tenders by Nov. 15.

Seaton Valley, Northumb.—Provision and laying of approx. 1,700 sq. yd. concrete flags at Cramlington for U.D.C. Documents from the Surveyor, Council Offices, Seaton Delaval, Whitley Bay. Tenders by Sept. 24.

Staffordshire.—Construction of dual carriageways for a distance of approx. 1½ miles on the Exeter-Leeds trunk road (Lichfield-Burton-on-Trent, A.38), from south of Alrewas to Wychnor Farm, for C.C. The work includes the reconstruction in reinforced concrete of three flood bridges and a river bridge; the widening of bridges over the River Trent and an arm of the Trent and Mersey Canal; construction of embankments, broken stone carriageway base, bitumen macadam base course and hot rolled asphalt wearing course. Deposit £5. Tenders by Oct. 10.

Standish-with-Langtree, Lancs.—Making-up of Roundmoor Road (100 lin. yd. approximately) and part of Thirlmere Avenue (47 lin. yd. approximately). Standish, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Ashfield House, Standish. Deposit £2 2s. Tenders by Oct. 3.

Stockport, Ches.—Final carpeting of a section of the roads comprising the Hillcrest Road and Brinnington housing estates, contract 15, for B.C. The area to be surfaced is approximately 20,000 sq. yd. Documents from Room 76, Town Hall, Stockport. Tenders by Sept. 30.

Stourbridge, Worcs.—Making-up of footways and verges at Rufford Estate in precast concrete flag paving (4,500 sq. yd. approx.) and ancillary works for B.C. Documents from H. W. Morris, borough engineer and surveyor, Council House, Stourbridge. Deposit £2 2s. Tenders by Oct. 11.

Sunderland, Dur.—Queen Alexandra Bridge north approach improvement (approximately 1,900 sq. yd. carriageway works) for B.C. Documents from the Borough Engineer, 27 Fawcett Street, Sunderland. Deposit £2 2s., cheques payable to Corporation. Tenders by Sept. 22.

Sunderland, Dur.—Thorney Close estate, footpath works, for B.C., comprising 20,200 sq. yd. of 2½in. precast concrete flags. Documents from the Borough Engineer, 27 Fawcett Street, Sunderland. Deposit £2 2s., cheques payable to Corporation. Tenders by Sept. 20.

Surbiton, Surrey.—Resealing of joints in concrete carriageways for B.C. Documents

from the office of R. Thirlway, borough engineer and surveyor, Council Offices, Ewell Road, Surbiton. Tenders by Sept. 30.

Swanage, Dorset.—Ulwell Road widening for U.D.C.: Excavation, removal, tipping and spreading of approx. 4,500 cu. yd. of soil. Documents from the Surveyor, Town Hall, Swanage. Tenders by Oct. 3.

Swansea.—Strengthening of a bridge carrying the A.48 over the railway at Tawe Road between Llansamlet and Lonlas, for B.C. The existing bridge is a masonry arch and the strengthening is to be carried out by surmounting the arch with a reinforced concrete saddle which is supported at the abutments by 18 vertical and 35 Raker bored piles. Documents from the office of R. D. Moody, borough engineer and surveyor, Guildhall, Swansea. Deposit £3, cheques payable to B.C. Tenders by Sept. 30.

Thurrock, Essex.—Reconstruction of Council Offices car park for U.D.C. Deposit £2 2s. Tenders by Sept. 21.

Uckfield, Sussex.—Construction of a car park and the reconstruction of the access road by the Town Hall Chambers for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Beacon Road, Crowborough. Deposit £2 2s. Tenders by Sept. 23.

Wembley, Middx.—Woodcock Hill improvement (Draycott Avenue to Kenton Road) and soil and surface water sewers for B.C., comprising reconstruction of carriageway in reinforced concrete (approx. 10,000 sq. yd.) and approx. 850 yd. sewers (from 9 in. to 27 in. diameter). Documents from the Borough Engineer and Surveyor, Town Hall, Wembley. Tenders by Sept. 30.

Windsor, Berks.—Repairing and resurfacing approx. 4,000 sq. yd. of Winkfield Road (Clew Hill Road to Woodland Avenue) in bituminous macadam for B.C. Documents from Borough Engineer, Kipling Memorial Building, Alma Road, Windsor. Tenders by Oct. 17.

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

***Barnet, Herts.**—Relief surface water sewer, East View, for U.D.C. Tenders by Sept. 17.

***Border, Cumb.**—Houghton sewage disposal works extension for R.D.C. Deposit £2 2s.

Colne Valley, Lancs.—West Slaithwaite sewer, Crowtrees branch, for U.D.C., including the supply and laying of approx. 520 yd. of 9 in. dia. glazed stoneware sewer. Documents from the office of the Engineer and Surveyor, Town Hall, Cross Street, Slaithwaite. Deposit £1 1s. Tenders by Sept. 26.

Doncaster, Yorks.—Sewer extension, parish of Austerfield, for R.D.C., comprising the laying of approx. 720 lin. yd. of 6 in. and 4 in. stoneware drains, 251 lin. yd. of 6 in. diameter asbestos-cement pumping main and the construction of an underground concrete pump-house and appurtenant works. Documents from the department of J. A. Williams, surveyor, Nether Hall, Doncaster. Tenders by Sept. 23.

East Suffolk.—Contract 31, drainage work at Great Glemham including approximately 3,000 cu. yd. of excavation, for C.C. Documents from County Surveyor, County Hall, Ipswich. Deposit £3. Tenders by Sept. 26.

***Gloucester.**—Relief sewer, Stroud Road/Bristol Road, for City Council. Deposit £2 2s. Tenders by Oct. 7.

***Letchworth, Herts.**—Surface water sewers, for U.D.C. Deposit £2 2s. Tenders by Sept. 30.

Lothlingland, Suffolk.—Sewerage contract 9 for R.D.C.: Construction of approx. 1½ miles of 6 in. glazed stoneware and concrete sewers, manholes, a pumping station and approx. 1½ miles of 4 in. and 5 in. asbestos-cement rising main at Barnby in the Lothlingland rural district and North Cove in the Wainford rural district. Documents from A. P. I. Cotterell and Son, 54 Victoria Street, Westminster, S.W.1, engineers, on or after Sept. 19. Plans also seen at the Lothlingland Rural District Council Offices, Rectory Road, Lowestoft. Deposit £5 5s. Tenders by Oct. 17.

Manchester.—Following for City Council: Construction of pre-aeration and primary sedimentation plant comprising eight sedimentation tanks each 146 ft. diameter and appurtenant works at Davyhulme sewage works extensions stage 1B. Documents from City Surveyor, Town Hall, Manchester, 2. Tenders by Oct. 31.

***Market Bosworth, War.**—Newbold Heath sewerage, for R.D.C. Deposit £2 2s. Tenders by Oct. 8.

***Matlock, Derbys.**—Darcy Dale sewerage, contract D.D.2, for U.D.C. Deposit £6 6s. Tenders by Nov. 14.

Neyland, Pems.—Sewerage and sewage disposal works, contract 5, for U.D.C., comprising construction of two sludge thickening tanks with concrete floor and walls and consolidated rubble-filled earth covered banks, short lengths of 6 in. diameter concrete and cast-iron drains, together with other works incidental thereto. Documents

from A. P. I. Cotterell and Son, engineers, 54 Victoria Street, Westminster, S.W.1. Plans also seen at the Council Offices, Neyland, Milford Haven. Deposit £3 3s. Tenders by Sept. 30.

North Witchford, Cambs.—Following for R.D.C.: (Contract 2) The supply and erection at Benwick of duplicate 100 g.p.m. sludge pumps, complete with electric motors, starters and accessories; (3) the supply and erection at Benwick of duplicate 20 g.p.m. and duplicate 100 g.p.m. ejectors, complete with electric motors, starters and accessories. Documents from John H. Haiste and Partners, Belmont House, 20 Wood Lane, Headingley, Leeds, 6, consulting engineers. Deposit £3 3s. each, cheques payable to R.D.C. Tenders by Oct. 8.

Norton, Yorks.—East Heselton sewerage and sewage disposal scheme for R.D.C. Work includes approximately 1,500 yd. of 6 in. diameter sewer in the village of East Heselton, together with the construction of a sewage disposal works, manholes and other ancillary works. Documents from Clerk of the Council, R.D.C. Offices, Welham Road, Norton. Deposit £1 1s. Tenders by Oct. 13.

Oxfordshire.—Laying of approx. 150 lin. yd. of 18 in. main surface water sewer, together with manholes and other ancillary works in the village of Kidlington for C.C. Documents from the County Surveyor, 8 New Road, Oxford. Tenders by Sept. 19.

Ramsey, Hunts.—Laying of connections to recently completed foul sewers and for the reinstatement of trenches for same for U.D.C. The work comprises the laying of about 5,500 yd. of 6 in. and 4 in. diameter drains in varying lengths and the construction of inspector chambers and other sundry works. The number of connections to be made to the sewers is approximately 500. Documents from Pick, Everard, Keay and Gimson, consulting engineers, 6 Millstone Lane, Leicester. Deposit £3 3s. Tenders by Oct. 1.

Rochford, Essex.—Construction of approximately 565 lin. yd. of 6 in. diameter foul sewer and appurtenant works at Hall Road, contract 284, for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Rochford. Deposit £2 2s. Tenders by Sept. 22.

***Rugby, War.**—Binley Common sewerage, Binley Woods estate, contract 15, for R.D.C. Deposit £10 10s. Tenders by Oct. 24.

St. Neots, Hunts.—Laying of a 6 in. diameter sewer in the market square, together with the necessary manholes, connections with existing sewers and incidental works for U.D.C. Documents from John Taylor and Sons, consulting engineers, Artillery House, Artillery Row, Westminster, S.W.1. Deposit £5. Plans also seen at the Council Offices, Huntingdon Street, St. Neots. Tenders by Oct. 12.

Shepton Mallett, Som.—Evercreech sewage disposal work for R.D.C.: (a) Laying of approximately 240 lin. yd. of 6 in. diameter g.s.s. sewers, together with the construction of relevant manholes; (b) construction of a sewage disposal works comprising inlet and stormwater chambers, screening and detritus chambers, two stormwater tanks each of 19,200 gallons capacity, one upward flow settlement tank of 38,400 gallons capacity, two circular percolating filters each of 370 cu. yd. capacity, two humus tanks each of 25,600 gallons capacity, sludge drying beds of 600 sq. yd. total area, two site pumping stations and other appurtenant works; (c) laying of approximately 850 lin. yd. of 9 in. diameter pipes for extension of the existing effluent outfall, together with the construction of relevant manholes. Applications to W. Herbert Bateman and Partners, consulting engineers, Chesterfield House, Bath-easton, Bath, giving the names and addresses of three engineers under whose direction similar schemes have been carried out. Deposit £5 5s. (cheques payable to R.D.C.). Plans also seen at the Council Offices, Highfield House, Park Road, Shepton Mallett. Tenders by Oct. 3.

Surbiton, Surrey.—Hook Road, surface water sewer, contract 3, for B.C. Construction of approx. 325 yd. of 12 in. and 15 in. diameter concrete pipe sewer, together with manholes and other appurtenant works. Documents from John Taylor and Sons, engineers, Artillery House, Artillery Row, Victoria Street, Westminster, London, S.W.1. Deposit £5. cheque payable to B.C. Plans also seen at the office of the Borough Engineer, Council Offices, Surbiton. Tenders by Oct. 7.

Thorne, Yorks.—Laying of 2,302 yd. of foul sewer and connections in Ellison Street and Southend for R.D.C. Documents from the Surveyor, P.O. Box No. 4, Council Offices, Thorne. Tenders by Oct. 5.

Uppingham, Rutland.—Construction of a small sewage disposal plant to serve seven houses at Wing Hollow and the laying of approx. 65 yd. 4 in. iron pipes for R.D.C. Documents from Council's Surveyor, Council Offices, Uppingham. Deposit £1 1s. Tenders by Oct. 3.

***Welton, Lincs.**—Bardney sewerage scheme for R.D.C. Deposit £3 3s. Tenders by Oct. 5.

Wood Green, Middx.—Reconstruction of approx. 170 lin. yd. of surface water sewer across Avenue Gardens, Station Road, London, N.22, using 12 in. g.s.w. pipes, for B.C. The works include the construction of one precast concrete manhole and the reconstruction of two existing manholes. Documents from the office of the Borough Engineer, Town Hall, Wood Green, London, N.22. Tenders by Oct. 6.

STREET LIGHTING

Batley, Yorks.—Supply of tungsten lamps and discharge lamps for B.C. Documents from Borough Engineer, Hanover Street, Batley. Tenders by Sept. 29.

***Camberwell.**—Street lighting for B.C. Tenders by Oct. 10.

***Ealing, Middx.**—Supply of lanterns and columns for B.C. Deposit £5. Tenders by Oct. 25.

***Featherstone, Yorks.**—Supply and installation of street lighting equipment for U.D.C. Deposit £2 2s. Tenders by Oct. 3.

Glasgow.—Supply of 450,000 yd. p.v.c. aerial cable for City Council. Documents from the Inspector of Lighting, 20 Trongate, Glasgow. Tenders by Oct. 14.

***Mitcham, Surrey.**—Removal of gas street lighting equipment for B.C. Tenders by Oct. 8.

***Northwich, Ches.**—Street lighting, for R.D.C. Deposit £2 2s. Tenders by Oct. 13.

***Thorney, Northants.**—Group "A" street lighting improvement for Parish Council. Deposit £2. Tenders by Oct. 10.

Warrington, Lancs.—Provision and installation of the following class B street lighting standards for R.D.C.: Croft village scheme, 37; other parishes, 27. Documents from Engineer and Surveyor, Council Offices, Museum Street, Warrington. Tenders by Oct. 13.

INTERNATIONAL CONTRACT

***Kericho, Kenya.**—Sewage works for U.D.C. Tenders by Oct. 17.

AWARDS

BUILDING AND DECORATING

(See also Housing Schemes)

Aylesford, Kent.—Building and civil engineering works in connection with laboratories to form part of the research and development centre at Aylesford for Reed Paper Group—James Miller and Partners, Ltd., Station Road, Pump Lane, Hayes, Middx. Estimated cost £500,000. Concrete frame and floors—Truscen, Ltd., 35 Lower Marsh, London, S.E.1.

Barry, Glam.—Construction of a sea-fed bulk terminal, for Mobil Oil Co., Ltd.—John Laing and Son, Ltd., London, N.W.7. Work has commenced.

Beaworth, Devon.—Erection of a science block at Shebbear College for the Governors. F. R. S. Yorke, E. Rosenberg and C. S. Maddall, architects, 2 Hyde Park Place, London, W.2—J. E. Stacey and Co., Ltd., Bodmin Street, Holmsworthy, £21,000.

Belfast.—Demolition and replacement in reinforced concrete of a bridge across the Connswater at Airport Road for Harbour Commissioners. J. McF. Neill, harbour engineer—Farrans, Ltd., Dunmurry, Belfast. Work is expected to commence in Oct.

Billingham, Dur.—Erection of Crown Buildings (first phase of new civic centre) for U.D.C.—George Wimpey and Co., Ltd., £36,215. Work to commence October.

Billingham-on-Tees, Dur.—Erection of Crown Buildings (first stage) for U.D.C. Elder and Lester, architects, Midland Bank Chambers, Town Square, Billingham—Wimpey and Co., Ltd., Orchard House, Fenwick Terrace, Newcastle upon Tyne, £36,215.

Birmingham.—Erection of industrial premises in Barr Street at the corner of Hockley Street for Moorgate (Birmingham), Ltd. A. E. Gurney, architect, 3 New Borough Road, Shirley—R. Watson (Birmingham), Ltd., 84 Ryland Road, Birmingham, 15, £26,000.

Birmingham.—Construction of car assembly building block with all ancillary buildings and external services at Longbridge, for Austin Motor Co., Ltd.—Wilson Lovatt and Sons, Ltd., Clarence Street, Wolverhampton, £1.4m. H. W. Weedon and Partners, architects, 45-47 Calthorpe Road, Edgbaston, and L. C. Wakeman and Partners, quantity surveyors, 11-12 Highfield Road, Edgbaston. Work has commenced.

Birmingham.—Construction of recorder house, rail sidings, yards, white oil bund walls, roads, etc., Bromfield Bulk Terminal, for Esso Petroleum Co., Ltd.—Turriff Construction Corporation, Ltd., Budbrooke Road, Warwick.

Blandford, Dorset.—Repairs to houses at Alfred Street for B.C.—F. W. R. Norris, Bryanston Street, Blandford, £2,113 (recommended); E. E. Boughton, Ltd., £3,235; R. J. Gristwood, £3,112; H. Macnally and Son, £2,996.

Blyth, Northumb.—Erection of mineral water factory in Northumberland Street for L. Wood, Bridge Street—Atcost, Ltd., Duke Street, Darlington, in conjunction with R. Hush, Union Street, Blyth.

Bristol.—Following for City Council: Cleaning down the interior stonework and cleaning and re-gilding the ceiling of the Lord Mayor's Chapel—Campbell Smith and Co., Ltd., 25 Newman Street, London, W.1, £3,462; conversion of the North Street School premises for use as a coroner's court and mortuary—Caines Bros. (Bristol), Ltd., Bedford Street, Bristol, 5, £37,603; conversion of Kingsweston Stables to a sub-divisional police station—D. and C. (Bristol), Ltd., 11 Church Lane, Bristol, £49,693 (recommended).

Burnley, Lancs.—Erection of commercial building on the Hill Top site for Hattons (Burnley), Ltd.—Howarth Construction Co., Ltd., Trafalgar Street, Burnley.

Cardiff.—Conversion of old general offices into laboratories, including all services, at East Moors, for Guest Keen Iron and Steel, Ltd.—Turriff Construction Corporation Development Group, Budbrooke Road, Warwick.

Cheltenham, Glos.—Construction of second stage of casualty and out-patients' department at Cheltenham General Hospital, Sandford Road, for South-West Regional Hospital Board. Healing and Overbury, architects, Rodney Lodge, Rodney Road, Cheltenham—Ford and Weston, Ltd., 542 Osaston Road, Derby. Estimated cost £75,000. Work about to commence.

Cumberland.—Erection of transmitting station at Brocklebank for the Independent Television Authority—John Laing and Son, Dalston Road, Carlisle.

Dawley, Salop.—Erection of an old people's home for C.C.—Wilson Lovatt and Sons, Ltd., Clarence Street, Wolverhampton.

Dorset.—Superstructure to Dragon reactor, including various administration buildings, A.E.E., Winfrith Heath, for United Kingdom Atomic Energy Authority—Turriff Construction Corporation, Ltd., Budbrooke Road, Warwick.

Durham.—Following for C.C.: Additional accommodation at Clegwell Modern School—Robert H. Hall and Co. (Kent), Ltd., Tonbridge, £3,150.

Erection of new Easington Technical College (stage 2) and Peterlee branch library—Milton Hindle, Ltd., Peterlee, Co. Durham, £220,000. Cordingley and McIntyre, Oswegate, Durham City, architects; R. H. Duns, Lambton Road, Jesmond, Newcastle upon Tyne, quantity surveyor.

East Grinstead, Sussex.—Improvements at the Ye Olde Felbridge Hotel, London Road—Direct Labour. Estimated cost £150,000.

Forehole and Henstead, Norfolk.—Provision and erection of structural steelwork in buildings proposed to be erected near Hethersett Station, Ketteringham, for R.D.C. W. A. Jones, engineer.—R. Stevenson (Structural), Ltd., Fishergate, Norwich, £3,087 (accepted); T. W. Palmer and Co. (Merton Abbey), Ltd., £4,275; Wall Engineering Co., Ltd., £3,216; Dawns, Ltd., £3,506; Boulton and Paul, Ltd., £3,405; Barnes and Pye, Ltd., £5,394.

Watwick, Surrey.—Construction of service buildings and ancillary works at Watwick Airport for Shell Mex and B.P., Ltd.—Turriff Construction Corporation, Ltd., Budbrooke Road, Warwick.

Glasgow.—Erection of a departmental store in Jamaica Street, Argyle Street, and St. Enoch Square for House of Fraser, Ltd., 10 Buchanan Street, Glasgow—Leslie and Co., Ltd., Peel Street, Kensington, London, W.8. Estimated cost £1m. Gordon Jeeves, architect, 61 Catherine Place, London, S.W.1; C. E. Ball and Partners, quantity surveyors, Fitzroy Square, London, W.1; George Davie, Crawford and Partners, structural consultants, 26 Woodside Place, Glasgow, C.3; and Winton Thorpe, Tunnadine and Partners, mechanical and engineering consultants, 76 Victoria Street, London, S.W.1.

Greenford, Middx.—Erection of five-storey block of offices and shops (to be known as Greenford House) at Ruislip Road East—Griggs and Son, Ltd., 56 Victoria Street, London, S.W.1, £145,000. John Bickerdike, architect, 88 George Street, Portman Square, London, W.1, and Ove Arup and Partners, consulting engineers, 8 Fitzroy Street, London, W.1. Work has just commenced.

Grimsby, Lincs.—Adaptations to provide accommodation for chronic sick patients at Immingham Hospital for the Sheffield Regional Hospital Board—J. G. Cockin and Son, Tetney, Grimsby, £12,847 (recommended, in lieu of previous tender).

Haverfordwest, Pems.—Reconstruction of the Castle Hotel for Wm. Hancock and Co., Ltd., The Brewery, Cardiff. G. R. H. Rogers, staff architect—George Argent and Co., South Road, Pembroke.

Hodnet, Salop.—Extensive alterations and extensions, etc., at St. Joseph's College, Hawkestone Park, for the Community of the Redemptionist Fathers. Morris and Whitehouse, architects, 5 Edmund Street, Birmingham, 3—Wilson Lovatt and Son, Ltd., Clarence Street, Wolverhampton, £107,000. Work has commenced.

Hoylake, Ches.—Erection of the Blue Anchor Hotel at Market Street for Birkenhead Brewery Co., Ltd.—F. Clark and Sons, Ltd., 191 Heyworth Street, Liverpool, 5. Estimated cost £40,000. Fergus, H. Frost, staff architect; A. E. Thornton-Firkin and Partners, quantity surveyors, 20 Chapel Street, Liverpool, 3; A. J. C. Wilson, consulting engineer, 27 Hamilton Square, Birkenhead.

Isle of Ely.—Following for E.C.: Part decoration of Isle of Ely College—Mann and Lefevre, March, £1,590; reinstatement work on crush hall floor and skirting—Beutles Building Co., Ltd., Alma Road Works, Millfield, Peterborough, £645.

Leamington Spa, War.—Extension to various factory and office buildings in operation "close up" at Tachbrook Road for Lockheed Hydraulic Brake Co., Ltd.—Turriff Construction Corporation, Ltd., Budbrooke Road, Warwick.

Liverpool.—Alterations to accommodation in Castle Chambers, Castle Street, for City Council—Wm. Thornton and Sons, Ltd., 38 Wellington Road, Liverpool, 8, £7,925 (recommended).

London.—Plywood storage shed at Clapton, E.5, for James Latham, Ltd., Clifford, Tee and Gale, architects, 5 Buckingham Palace Gardens, London, S.W.1—Turriff Construction Corporation, Ltd., Budbrooke Road, Warwick.

Macclesfield, Ches.—Alterations at Ivyholme House, Ivy Lane, for Macclesfield District Water Board—G. Roylance and Co., Waters Green, Macclesfield, £826.

Newcastle upon Tyne.—Foundation work for annex to Museum of Science and Industry for "S. Y. Turbina" for City Council—Robert Anderson (Builders), Ltd., Newcastle, £1,974.

Northallerton, Yorks.—Erection of swimming bath for U.D.C. Mortimer Partners, architects, Ainderby Hall, Northallerton—W. Thompson (Contractors), Ltd., North End, Northallerton.

Northampton.—Modernisation of eight houses at Bugbrooke for R.D.C.—Direct Labour, £7,650.

Northern Ireland.—External repainting of 137 dwellings at Ballyclare for Housing Trust, 12 Hope Street, Belfast, 12—L. Kirkpatrick and Sons, 25 High Street, Antrim.

Northumberland.—Additions to the Ministry of Pensions and National Insurance headquarters at Longbenton—Tate and Holmes, Ltd., Benwell Village, Newcastle upon Tyne.

Plymouth.—Erection of shop, showrooms and offices at Cornwall Street for A. and R. Wallpapers, Ltd.—Richard Costain (Construction), Ltd., 111 Westminster Bridge Road, London, S.E.1. Theo. H. Birks, architects, 38 Portland Place, London, W.1; C. J. Pell and Partners, consulting engineers, 4 Manchester Square, London, W.1; and Basil A. Cohen, quantity surveyor, 60 Berners Street, London, W.1.

Radeliffe-on-Trent, Notts.—Following works at the Saxondale Hospital for Sheffield Regional Hospital Board: Enclosure of verandas to wards M.9 and F.3 (builders' work)—Wm. Woodsend, Ltd., Castle Boulevard, Nottingham, £1,668; patent glazing—Williams and Watson, Ltd., 77 Victoria Street, Liverpool, 1, £1,654 (recommended).

Renfrewshire.—Erection of Bishopthorpe Primary School for the C.C.: Excavator concrete works—Wilson Bros. (Builders), Ltd., Glasgow; carpenter, joiner work—Charles Johnson, Ltd., Paisley; plumber—James Wilson and Sons (Plumbers), Ltd., Paisley; plaster and cement—Thomas Dunn and Co., Greenock; tile and terrazzo—Toffolo Jackson and Co., Ltd., Glasgow; metal windows and lantern lights—Metal Casements, Ltd., Walsall; glazier—George G. Kirk, Ltd., Paisley; asphalt—Pirie and Co. (Paisley), Ltd., Paisley; roughcast and external cement work—Hugh Allan and Son, Ltd., Paisley; felt roofing, etc.—D. Anderson and Son, Ltd., Glasgow; painter—Cowan and Stewart, Paisley; tarmacadam of playgrounds and paths—Pirie and Co. (Paisley), Ltd., Paisley; iron railings and gates—The Barony Construction Co. (Glasgow), Ltd.,

Glasgow; electrical services—Standard Electric Co., Ltd., Edinburgh.

Rotherham, Yorks.—Extension of dispensary at Rotherham Hospital for Sheffield Regional Hospital Board—Chadwick and Co. (Rotherham, 1931), Ltd., College Road, Rotherham, £10,564.

Salford, Lancs.—Erection of a "Dockers' Club" on site bounded by Trafford Road, Monmouth Street and Garfield Street for National Dock Labour Board—David Walton and Co., Ltd., Clarendon Road, Salford, 5. Cruickshank and Seward, architects, Royal London House, Deansgate, Manchester; and M. C. G. Seward, Ashbourne House, 334 Wellington Road North, Stockport, is the quantity surveyor. Work commenced.

Scunthorpe, Lincs.—Erection of a printing works in Station Road for Bartle and Son, Ltd.—R. M. Phillips and Son, Ltd., Briggs, Lincs. Estimated cost £18,500. Buttrick and Buttrick, architects, 43 Oswald Road; and Stephen Saxby, quantity surveyor, Dunstall Street.

Sheffield.—Repairs, etc., to following properties for City Council: 2-12 (even nos.) and 1, 2 and 3 in Ct. 4, Turner Street—H. E. Mottram and Sons, Ltd., 14 Reed Street, Sheffield, 3, £1,522; 113-119 (odd nos.) and 4, 5 and 6 in Ct. 12, Victoria Street; and 43 Petre Lane, and 42-48 (even nos.); and 1, 2 and 3 in Ct. 12, Broomspring Lane, 50 Broomspring Lane and 121 Victoria Street—G. Banks, Ltd., 665 Attercliffe Common, Sheffield, 9, £1,332 and £1,499, respectively; 209-217 (odd nos.), 1, 2 and 3 in Ct. 43 and 1 and 2 in Ct. 45, Pearl Street—W. Hamilton and Sons, 89 Staniforth Road, Sheffield, 9, £1,674; 191-197 (odd nos.) and 2-5 (consec.) in Ct. 37, Pearl Street—George Crowther and Son, Ltd., 36 Talbot Street, Sheffield, 2, £1,992; 173-177 (odd nos.) and 1-4 (consec.) in Ct. 33, Pearl Street, and 8 and 10 Mackenzie Street; and 52-62 (even nos.) Broomspring Lane—Ackroyd and Abbott, Ltd., 47 Willoughby Street, Sheffield, 4, £1,319 and £1,737, respectively; 100-106 (even nos.) 1 and 2 in Ct. 8 and 1 and 2 in Ct. 10, Victoria Street—Sandall Woffindin, Ltd., Alpha Works, Clough Road, Sheffield, 1, £1,198; 3 and 5 Convent Place, and 86-90 (even nos.) and 1 and 2 in Ct. 2, Victoria Street—Frederick Ridal and Sons (Builders), Ltd., 8 Cobden View Road, Sheffield, 10, £1,685; 237-245 (odd nos.), 1-5 (consec.) in Ct. 51 and 1-4 (consec.) in Ct. 53, Pearl Street—E. Robson and Son, Ltd., 199 Walkley Bank Road, Sheffield, 6, £2,063; 30-40 (even nos.) and 1-6 (consec.) in Ct. 10, Broomspring Lane—Chas. Hatton, 15 Norton Lees Road, Sheffield, 8, £2,228 (all recommended).

Sutton Coldfield, War.—Complete reconstruction of an existing R.A.F. stores depot for use as a new Fusilier Brigade Depot, for War Department—Wilson Lovatt and Sons, Ltd., Clarence Street, Wolverhampton, £476,000. Work to commence shortly.

Tamworth, Staffs.—Construction of storage and dispatch building, for Turners Asbestos Cement Co., Ltd.—Wilson Lovatt and Sons, Ltd., Clarence Street, Wolverhampton, £137,000.

Thetford, Norfolk.—Erection of a store in King Street for F. W. Woolworth and Co., Ltd., 242 Marylebone Road, N.W.1—Direct Labour. Work to commence this month.

Willisden, Middx.—Construction of mould shop B at Ebonite Works for Joseph Lucas, Ltd., Clifford Tee and Gale, architects, 5 Buckingham Palace Gardens, London, S.W.1—Turriff Construction Corporation, Ltd., Budbrooke Road, Warwick.

Wolverhampton.—Construction of an office block adjacent to the main Stafford Road for The Goodyear Tyre and Rubber Co. (Great Britain), Ltd., Bertram Butler and Co., architects, 6 Tottenhall Road, Wolverhampton—T.G. Construction Co., Ltd., Ertingshall, Wolverhampton, £120,000. Work to commence this month.

York.—Erection of an open shed at the parks department depot, Knavesmire Road, for City Council. E. Firth, city architect, 8 St. Leonard's Place—Sorell (York), Ltd., 95 Heworth Village, York, £804.

DEMOLITION

Redcar, Yorks.—Demolition of bath villas, together with six reinforced concrete blocks and site clearance, for B.C.—Robert E. Alderson, Birch House, Rockcliffe, Croft, near Darlington, £220.

Sheffield.—Demolition of following for City Council: Two hundred and seventy-six properties in Woodside Lane redevelopment area (stage 1)—Sheffield and Rotherham Dismantling Co., 114 Abbeyfield Road, Sheffield, 4, £2,700; former Pye Bank Chapel, Pitsmoor Road—H. Hodges, 18 Manor Laithe Road, Sheffield, 2, £420 (both recommended).

ELECTRICAL

Darlington, Dur.—Electrical work at Winston Stubb House Youth Holiday and Training Centre for Co. E.C.—Paterson and Co., Darlington, £963.

Durham.—Electrical work at High Usworth Modern School for Co. E.C.—Campbell and Isherwood, Newcastle upon Tyne, £5,403.

Forehole and Henstead, Norfolk.—Electrical installation in buildings to be erected near Hethersett Station, Ketteringham, for R.D.C.—Beaven and Sons, Norwich, £780 (accepted); G. Roe, £782; R. H. Pottle, £879; Norwich Electrical Co., £1,065; Eastern Electricity Board, £780; Mann Egerton and Co., Ltd., £848.

Houghton-le-Spring, Dur.—Electrical work at modern school for Co. E.C.—North of England Engineering and Electrical Co., Ferryhill, £1,716.

Leicester.—Goods / passenger lift (group pharmacy) at Royal Infirmary, for Sheffield Regional Hospital Board—Etchells, Congden and Muir, Ltd., 27 Lydgate Hall Crescent, Sheffield, 10, £2,049.

Liverpool.—Provision and installation of automatic traffic signals at the junction of St. Mary's Road with Church Road and Speke Road for City Council—Automatic Telephone and Electric Co., Ltd., 8 Arundel Street, London, W.C.2, £1,514 (recommended).

Manchester.—Electrical installation work (contract 317) Maple Road, Brooklands, for City Council—F. L. Bampton, Ltd., 7 Minshull Street, Manchester, 1.

Newcastle upon Tyne.—Supply and installation of traffic control signals at junction of Osborne Road, Jesmond Road and Osborne Terrace for City Council—Siemens and General Electric Railway Signal Co., Ltd., East Lane, Wembley, Middlesex, £1,302 (recommended).

Northumberland.—Installation of lighting, heating and power at the new Warkworth pumping station and filtration works for the Coquet Water Board—Campbell and Isherwood, Ltd., Silver Street, Newcastle upon Tyne, £5,133 (subject to Ministry approval).

Sheffield.—Installation of the operational lighting and power services required at the Oaks Water Tower for City Council—Yorkshire Electricity Board, £1,188 (recommended).

Sunderland, Dur.—Electrical work in following for B.C.: Fifty-four houses on Thorney Close estate—Gee and Brown, Ltd., Sunderland, £1,499; 84 houses on Farrington estate—John Calvert, Ltd., Seaham, £2,069.

Whickham, Dur.—Electrical work at modern school for Co. E.C.—Storey and Crowe, Ltd., Crawcrook, £5,996.

FENCING

Liverpool.—Supply of pedestrian guard rails and five pairs of hinged gates, for installation on the westerly side of Stanley Road for City Council—Expanded Metal Co., Ltd., Burwood House, Caxton Street, London, S.W.1, £2,057 (recommended).

Salford, Lancs.—Supply of fencing and gates for layout of the Broughton Centre, Wilmur Avenue, for City Council—Thomas Bowen, Ltd., Wolverhampton, £637 (recommended).

GAS AND WATER SUPPLY

Forehoe and Henstead, Norfolk.—Following for R.D.C.: Provision and laying of about 3,500yd. of 4in. and 3in. diameter spun-iron pipe water mains at Welborne, A. J. Holloway, Ltd., Wymondham, Norfolk, £8,084 (accepted); Ford and Carter, Ltd., £8,099; E. J. Edwards (Norwich), Ltd., £8,477; M. G. Dye, £8,550; A. R. King, £8,168; R. G. Carter, Ltd., £14,297.

Deopham Stalland water supply, including the repair and reconnection of an existing disused water main and the laying of approx. 350yd. of new 3in. iron pipes, together with fittings, service connections and ancillary works.—M. Dye, Chedgrave, Loddon, Norfolk, £1,126 (accepted); Edward J. Edwards (Norwich), Ltd., £1,160.

Guildford, Surrey.—Construction of a new reservoir at Pewley Hill, for Guildford, Godalming and District Water Board—Peter Lind and Co., Ltd., Romney House, Tufon Street, London, S.W.1, £90,301.

Norwich.—Pipe laying for first stage of the laying of a new 24in. ring main round the south of Norwich for City Council—R. G. Carter, Ltd., Drayton, Norwich, £4,040.

Sheffield.—Exploration works at the sites of the Yorkshire Derwent scheme works at Elvington for City Council—Ground Explorations, Ltd., 75 Uxbridge Road, London, W.5, £1,497 (recommended).

HARBOURS, PIERS AND SEA DEFENCE WORKS

Cardiff.—Fendering at Queen Alexandra Dock (South Lay) for Regent Oil Co.—Davies Middleton and Davies, Ltd., Phoenix Works, Caerphilly Road, Cardiff.

Llandudno, Caerns.—Construction of reinforced concrete coast protection works for U.D.C. These works comprise: (a) The construction of 304yd. of reinforced stepped sea

wall; (b) the construction of four timber groynes; (c) the reconstruction of the lifeboat slipway; (d) the driving of 89 tons of steel sheet piling. J. A. Edwards, engineer and surveyor.—A. E. Farr and Co., Ltd., Westbury, Wilts., £41,857. Work to commence Oct.

Middlesbrough, Yorks.—Construction of rail and crane tracks at the Nos. 1 and 2 berths at new deep-water quays at Lackenby for the Tees Conservancy Commission—Darlington Railway Plant and Foundry Co., Ltd., Dyrlington (subsidiary of T. W. Ward, Ltd., Sheffield), £27,257.

Stonehaven, Kincardines.—Construction of Foreshore and River Protection Works for B.C. Arch Henderson and Partners, consulting engineers, 21 Bridge Street, Aberdeen—Briggs and Sons, Ltd., Dundee, £29,279.

Sunderland, Dur.—Construction of new welding bays, etc., for William Doxford and Sons (Engineers), Ltd.—Brims and Co., Ltd., Pandon Buildings, City Road, Newcastle upon Tyne.

HEATING AND VENTILATING

Forehole and Henstead, Norfolk.—Installation of oil-fired heating system in buildings to be erected near Hethersett Station, Ketteringham, for R.D.C.—A. Pank and Son, Ltd., 29 St. Giles Street, Norwich, £754 (accepted); F. L. Lawrence (Engineers), Ltd., £968; E. G. Reeve and Sons, Ltd., £991; Barnards and Boulton, Ltd., £855; E. J. Cunningham, Ltd., £901.

Liverpool.—Supply of a "Dravo" model 75 oil-fired heating unit for heating system in Breckside Park workshops for City Council—Charles R. Honiball and Co., Ltd., 32 Cleveland Square, Liverpool, 1, £935 (recommended).

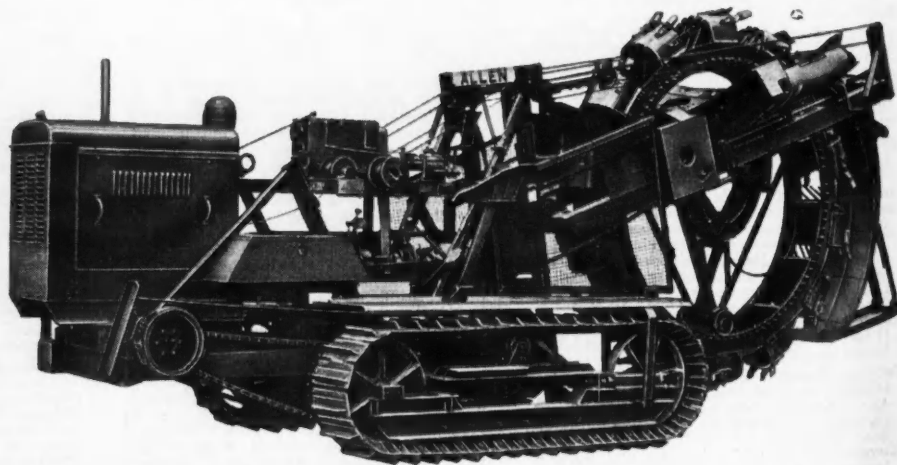
Manchester.—Following for City Council: Supply and erection of central heating and boiler plant installations at Plant Hill Road, Blackley, combined clinic—Batleys (Builders), Ltd., Bottoms Wharf, Mossley (recommended).

Supply and erection of central heating and boiler plant installation at Charlestown Road, Charlestown combined clinic—Batleys (Builders), Ltd., Mossley.

HOUSING SCHEMES

Birmingham.—Following for City Council: Twenty-seven dwellings and five garages, Ardencote Road, Hollybank Farm estate, Kings Heath; and 25 dwellings, Shard End and Sheldon areas—Gilligan Bros., Ltd., 765 Shirley Road, Hall Green, Birmingham, 28,

ALLEN WHEEL TRENCHER MODEL 140



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Combining speed of digging with dependability, the "140" has a range of traction speeds from .5 to 37.3 ft. per minute, and will cut clean, fast trenches, 17½ in. to 30 in. wide, to a maximum depth of 5 ft. 6 in. 16 in. smooth crawler tracks, with cleats, give a ground pressure of only 5.7 lbs. per sq. in.

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£42,446 and £41,133, respectively; three dwellings, Gladstone Road, Sparkbrook—Michael Woods, Ltd., First Acres, Dormston Lane, near Inkberrow, Worcestershire, £5,800.

Bristol.—Conversion of 132 Filton Road, Horfield, and 4 Cheddar Grove, Bedminster Down, into flats for City Council—Direct Labour (recommended). Estimated cost £80 each.

Chigwell, Essex.—One four-storey block containing 12 flats, and one two-storey block containing eight flats, at Love Lane, Woodford Bridge, for U.D.C. Tooley and Foster, architects, Midland Bank Chambers, Buckhurst Hill—P. G. Evans and Son, Ltd., 361 Higham Hill Road, Walthamstow, E.17, £39,000 (accepted); Bostock and Partners, Ltd., £41,356; Seivard, Ltd., £42,054; A. R. Sheppard, Ltd., £42,673; Gray Conoley and Co., Ltd., £45,954; Wm. J. Jerram, Ltd., £46,540; C. S. Foster and Sons, Ltd., £46,760; F. P. Smith (Thurrock), Ltd., £47,120; A. and C. Barvis, Ltd., £47,340.

Darlington, Dur.—Eighteen houses on the Glebe Farm Estate for B.C. E. A. Tornbohm, borough architect—Boddy and Bell, Thomas Street, Darlington, £28,285.

Downpatrick, Down.—Forty dwellings and 29 garages at Kary Hill site for Northern Ireland Housing Trust, 12 Hope Street, Belfast, 12—H. J. O'Boyle, Ltd., Irish Street, Downpatrick. Estimated cost £90,000.

Eccles, Lancs.—Following for City Council: Eighty-four flats in the Philip Street/New Row area and 18 flats on the Nelson Street site—G. and J. Seddon, Ltd., Little Hulton, Walkden, Manchester, £188,560 (recommended, subject to Ministry approval).

Flats at following: 12 Worsley Road, 42 Egerton Street, 24 Ennismore, Regent Street and 12 Talbot Street—Henry Daniels and Son (Building Contractors), Ltd., 2 Midland Bank Chambers, Station Road, Urmston, £171,101 (recommended).

Two pairs of semi-detached three-bedroom houses on Scott Avenue site—Direct Labour, £8,105 (recommended, subject to Ministry approval).

Haltwhistle, Northumb.—Thirty-two Unity dwellings, community room and warden's flat at Greenholme for R.D.C. P. H. Campbell, surveyor—T. D. Bird (Hexham), Ltd., 13 Hencotes, Hexham, £36,035.

Manchester.—Following for City Council: Fifteen dwellings on Langley estate and conversion of house 7 Amherst Road, Withington, into nine flats, and alterations to 108 dust chambers at Collyhurst flats—Direct Labour (subject to Ministry approval). Staircase balustrading work at Ringsgate Road, Woodhouse Park and Hollyhedge Roundabout, Wythenshawe—Brookes and Co. (1925), Ltd., 129 Stockport Road, Manchester, 12.

Newcastle upon Tyne.—Following for City Council: One hundred and fourteen houses and 10 garages on the Newbiggin Hall Estate, groups 13-14—William Leech (Builders), Ltd., 7-8 St. James' Street, Newcastle upon Tyne, £198,184; six houses on the Slatyford Lane Estate, section F—J. J. Hedley, 9 Manor Clare, Newcastle upon Tyne, 1, £10,616 (both recommended, subject to Ministry approval).

Oswestry, Salop.—Fifteen single-bedroom bungalows on the Middleton Road estate, for B.C. G. Whitmore, architect, Compton Chambers, 4 Church Street, Oswestry—D. G. Clark, Pontfadog, near Wrexham, £20,291.

Salisbury, Wilts.—Six houses, 58 flats, five garages, together with outbuildings, pavings,

drainage and all ancillary works, at Essex Square, West Harnham, for B.C. A. Rackham, city engineer—John Prichard, Ltd., Salt Lane, Salisbury, £83,477 (accepted); A. J. Dunning and Sons, Ltd., £86,600; J. T. Parsons and Son, Ltd., £87,194; D.R.B. (Salisbury Plain), Ltd., £93,266; John Laing and Son, Ltd., £95,521. Work commencing Nov. 1.

Scotland.—Contracts placed by the Scottish Special Housing Association from June 21 to Aug. 24:

Newington, Annan. (42 Dunedin): Ross Contractors, East Calder—house fencing.

Northwood, Tullibody (38 Trad.): Alexander Todd, Sauchie, by Alloa—brick; W. H. Gray (Glaziers), Ltd., 32 Coalgate, Alloa—glazier; David Robertson and Sons (Denny), Ltd., Herbertshire Street, Denny—roof tiler and roughcast; D. and J. Ogilvie (Builders), Ltd., Stirling—plaster; Alex. Fraser and Co., Dunfermline—painter; Hartley Electromotives, Ltd., Edinburgh—electrical.

Johnstone Castle, Johnstone (214 No-fines): McEwan Bros., 102 Hillhead Road, Kirkintilloch—handrails.

Glenshalloch, Dalbeattie (30 Dunedin): Ross Contractors, Raw Smithy, East Calder—chain link boundary and division fencing.

Americanmuir Road, Dundee (second Contract, 94 Dunedin): Barnett and Morton, Ltd., High Street, Kirkcaldy—handrails.

Northwood, Tullibody (38 Trad.): Matthew Primrose and Co., 52 Abbey Street, Stirling—joiner.

Langlands Road, Glasgow (112 Flats): Marley Tile Co., Ltd., Cadder, Bishopbriggs—thermoplastic tiles.

Central Area, Clydebank (392 Flats): Marley Tile Co., Ltd., Cadder, Bishopbriggs—thermoplastic tiles; Otis Elevator Co., Ltd., 2 St. Andrew Square, Edinburgh—lifts.

Northwood, Tullibody (38 Trad.): A. D. Mitchell and Sons (Plumbers), Ltd., 5-9 New Row, Perth—plumber.

Langlands Road, Glasgow (112 Flats): A. N. Wallis and Co., Ltd., Greasley Street, Balwell, Nottingham—lighting protection.

Central Area, Clydebank (392 Flats): A. N. Wallis and Co., Ltd., Greasley Street, Balwell, Nottingham—lighting protection; James Kilpatrick and Sons, Ltd., Kelvin House, River Cart Walk, Paisley—electrical work and radio and T.V. reception equipment; James Thow, Ltd., 14-18 Fort Street, Ayr—glazier.

Langlands Road, Glasgow (112 Flats), and Central Area, Clydebank (392 Flats): James Lumsden, Ltd., Downie Brae Road, Rutherglen—ventilation systems.

Park Farm, Port Glasgow (108 Trad.): T. P. Marwick and Co., Edinburgh, 11—front and division fencing.

Cadder Road, Glasgow (Factorial Offices): A. M. Tweedie and Co., Ltd., 44-52 Bilbair Street, Glasgow—fencing.

Udston-Hillhouse, Hamilton (100 Weir): Ross Contractors, Raw Smithy, East Calder—chain link fencing.

Gairloch, Ross-shire (2 Dunedin): Alex. Hall and Co. (Builders), Ltd., Granitehill Road, Aberdeen—all trades.

Foxbar III C, Paisley (192 Atholl): A. M. Tweedie and Co., Ltd., 44-52 Bilbair Street, Glasgow—boundary fencing.

Hyvots Bank, Edinburgh (14 Dunedin), and Oxbgangs Avenue, Edinburgh (54 Dunedin Flats): Crudens, Ltd., Olive Bank, Musselburgh—all trades.

Northwood, Tullibody (124 Dunedin): Neil Nicholson and Co., Kirkcaldy—painting hand and guard rails.

Fancy Farm, Greenock (74 of 175 Weir): Barnett and Morton, Ltd., Hayfield Works, Kirkcaldy—handrails to steps.

Newbattle, Midlothian. Maintenance Depot: S.S. Electricity Board, Musselburgh—electric services.

Foxbar III C, Paisley (192 Trad.): McEwan Bros., 102 Hillhead Road, Kirkintilloch—handrails to steps.

Americanmuir Road, Dundee (94 Dunedin): Barnett and Morton, Ltd., Hayfield Works, Kirkcaldy—garden fencing; Dundee Roads Dept., Dundee—trimming and replanting mutual hedge.

Northwood, Tullibody (38 Trad.): Matthew Primrose and Co., 52 Abbey Road, Stirling—joiner.

Johnstone Castle (second Dev.), Johnstone (66 No-fines): T. P. Marwick and Co., Sighthill Industrial Estate, Edinburgh—staircase and balcony balustrades.

Langlands Road, Glasgow (112 15-storey flats), and Central Area, Clydebank (392 15-storey flats): Durastic, Ltd., 13 Park Terrace, Glasgow—asphalt.

Foxbar, Paisley (112 15-storey flats): A. and P. Steven, Ltd., 181 St. James Road, Glasgow—lift installation.

Langlands Road, Glasgow (two 15-storey blocks), and Central Area, Clydebank (seven 15-storey blocks): Barnett and Morton, Ltd., Hayfield Works, Kirkcaldy—metal.

Foxbar, Paisley (112 M.S. flats): Glasgow Steeplejack Co., 1173 Gallowgate, Glasgow—lighting protection equipment.

Devilla, High Valleyfield, Fife (50 Dunedin): James Ross, Loganlea, West Calder—fencing.

Auchterderran, Fife (113 No-fines): Anglo-American Asphalt Co., Ltd., Coatbridge—pitch to solum.

Site servicing undertaken by Direct Labour Organisation: Central Area, Clydebank (seven 15-storey blocks)—first stage: State Mental Institution, Carstairs (28 houses)—first and second stages; Johnstone Castle, Johnstone (280 multi-storey flats)—second stage; Grahamsdyke, Bo'ness (88 N.F. cottages and flats)—second stage.

House erection by Direct Labour: Eglinton, Irvine (113 No-fines); Auchterderran, Fife (113 No-fines).

Stroud, Glos.—Fourteen dwellings at Selsley Road for R.D.C.—Orchard and Peer, Ltd., Bowbridge Wharf, Stroud, £21,616.

Sunderland, Dur.—Following for B.C.: Two hundred and sixty houses on Town End Farm Estate—Direct Labour, £385,742; 39 houses on various sites—L. W. Evans, Ltd., 18 Norfolk Street, Sunderland.

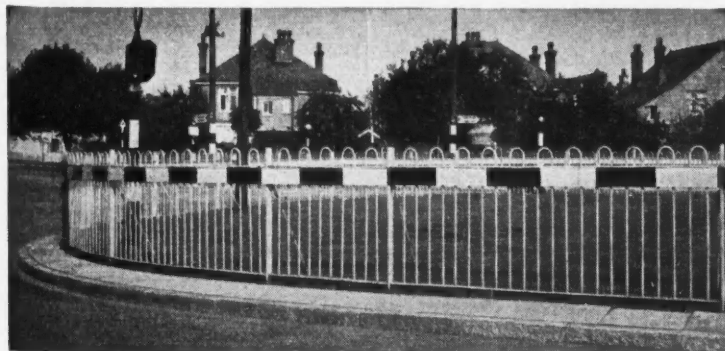
Totnes, Devon.—Demolition of seven cottages and various out-buildings within a clearance area and the erection of a block of six flats, together with incidental site works, at Higher Street, Dittisham, for R.D.C.—W. J. Goodridge and Son, Bridgetown, Totnes, £9,640.

West Kesteven, Lincs.—Traditional-type bungalows for R.D.C.: Twelve at Caythorpe—W. Dobie and Sons, Ltd., Chigwel Road, Chelmsford, £16,000; two at North Witham and two at Pickworth—Harwood Bros., Corby Glen, near Grantham, £2,599 and £2,717, respectively.

MATERIALS AND SUPPLIES

Bristol.—Supply of 400 garden sheds for City Council—John Snow and Co., Ltd., Glastonbury, Som., £8,800 (recommended).

Sheffield.—Supply of 70 prestressed concrete roof beams for proposed subway and public conveniences at Moorhead for City Council—Pierhead, Ltd., Speke Boulevard, Liverpool, £1,439 (recommended).



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MISCELLANEOUS

Sheffield.—Removal of cremators 3 and 4 at the City Road Crematorium and supply and installation of two new cremators and ancillary equipment for City Council—Dowson and Mason, Ltd., Alma Works, Manchester, 19, £5,489 (recommended).

PLANT AND MECHANICAL TRANSPORT

Liverpool.—Supply of following for City Council: Two 10cwt. Bedford vans, in primer—Garlick, Burrell and Edwards, Ltd., Liverpool, £831; two Thames Trader 4-ton chassis and cabs—A. W. Webb, Ltd., Liverpool, £901 each (both recommended).

Newcastle upon Tyne.—Supply of following for City Council: One 3-ton Thames Trader tipping wagon and three 5-ton Thames Trader tipping wagons—R. H. Patterson and Co., Ltd., Forth Street, Newcastle upon Tyne, £962 and £3,321, respectively; one Austin 15cwt. omni-truck and two Austin 15cwt. vans—Murray and Chareton, Ltd., Westgate Road, Newcastle, 4, £476 and £978, respectively; one heavy-duty vehicle lift—Equipment and Engineering Co., Ltd., 2 Norfolk Street, London, W.C.2, £1,082.

Sheffield.—Supply of two 5-ton type g.b.v. diesel-engined road rollers, each with certain extra equipment, for City Council—Aveling-Barford, Ltd., Grantham, Lincs., £2,079 each, net, delivered (recommended).

RAILWAY ENGINEERING

British Railways.—Following contracts placed: North Eastern Region:

Provision and installation of a carriage washing machine at Hammerton Street Motive Power Depot, Bradford—Drummond Asquith, Ltd., Birmingham.

Construction of fuel tank enclosures and pumphouse at York Motive Power Depot—W. Birch and Son, Ltd., York.

Renewal of electric wiring of 85 railway houses at North Blyth—J. W. Potts, Blyth.

Provision of power houses at Alnmouth and Morpeth—The Berwick Building Co., Berwick-on-Tweed.

Provision of tractor-mounted air compressors and accessories for the Chief Civil Engineer's department—Holman Bros., Ltd., Sheffield, 2.

Provision of rail saws and drills for the Chief Civil Engineer's department—Matisa Equipment, Ltd., Chertsey.

Provision of Hymatic Hydrovane mobile compressors for the Chief Civil Engineer's department—Hymatic Engineering Co., Ltd., Redditch.

Provision and erection of a low pressure hot water heating system, hot and cold water services and ventilation plant in a new office building at Paragon Station, Hull—Raines (H. and V.), Ltd., Wakefield.

Painting King Edward Bridge, Newcastle, Wear Bridge and Queen Alexandra Bridge, Sunderland—W. Latimer and Co., Ltd., Newcastle.

Supply of precast concrete units for Bridge 39, Cod Beck, on the York-Newcastle line—Dow-Mac (Products), Ltd., Stamford.

Raising of the superstructure of Bridge 19A, near Hampole, on the Doncaster-Leeds line—Pavior Construction, Ltd., Shipley.

Reconstruction of Bridge 29, Benfield Road, near Heaton, on the Newcastle-Berwick line—Cleveland Bridge and Engineering Co., Ltd., Darlington.

Construction of a temporary signal box for the new marshalling yard at Lamesley—Mitchell Construction Co., Ltd., Peterborough.

Provision of precast concrete units in connection with the reconstruction of Bridge 145, near Lucken on the Newcastle-Berwick line—Tarslag, Ltd., Stockton-on-Tees.

Sheffield.—Formation of railway approach between the existing railway track and sidings at Acres Hill Wholesale Market for City Council—B. Y. Jackson and Son, Ltd., Derby Road, Chesterfield, £11,773 (recommended).

RIVER AND FLOOD PREVENTION WORKS

Cookham, Berks.—Construction of flood relief scheme at New Road, Holyport, for R.D.C.—Ruddock and Meighan, Ltd., Burford House, Harrow View, Wealdstone, Middx. Estimated cost £4,550.

ROADS, BRIDGES AND SITE WORKS

Bedfordshire.—Turvey Bridge repairs, Ipswich-Weedon trunk road, A.428, for C.C.—

Winton Hayes, Ltd., Drove Road, Biggleswade, £730.

Beverley, Yorks.—Construction of sewer works and 900 super. yd. of new tarmac roadway off New Walk, Beverley. A. I. Windross and Partners, Ltd., land agents and surveyors, Princes Dock Side, Hull—J. J. Boyce, 9 Rydal Grove, Cottingham, East Yorkshire, £5,974. Work commencing Sept. 19.

Bexley, Kent.—Surfacing road in tarmacadam together with construction of artificial stone slab footpath to serve 10 bungalows at Arbuthnot Lane for J. Wade and Sons (Builders), Ltd.—Hodsons, Ltd., Gravesend.

Blackpool, Lancs.—Construction of Warren Drive extension, comprising approx. 7,000 sq. yd. of carriageway and 761 lin. yd. to sq. yd. of carriageway and 761 lin. yd. of 21in. to 72in. diamete sewers, for B.C. Arthur Hamilton, borough surveyor—J. O'Reilly and Co., 55 Market Street, Manchester, £60,484.

Bristol.—Trial boreholes for the Ashton Road/Winterstoke Road junction improvement scheme, for City Council—Holland & Hannen and Cubitts, Ltd., 13 Donry Square, Bristol, 8. Estimated cost £900 (recommended).

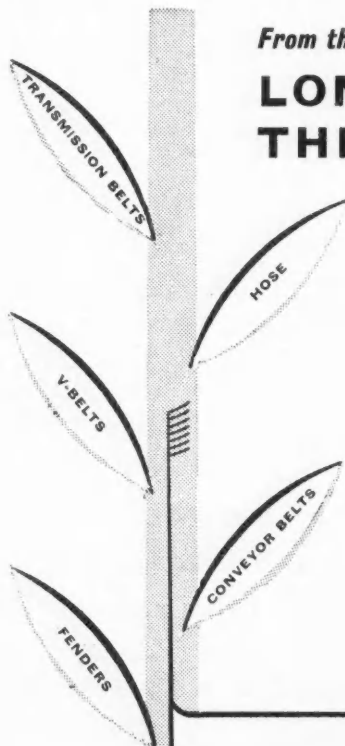
Caithness.—Reconstruction of approx. 1.3 miles of road on route A.895 from Benachiel to Newlands of Latheron for C.C.—William Tawse, Ltd., Angusfield, Aberdeen, £29,863 (accepted); J. Baxter and Sons (Contractors), Ltd., £32,173; Alexander Sutherland, Ltd., £34,447; D. Logan (Builders), Ltd., £45,236.

Caithness.—Reconstruction of approx. 0.90 miles of road on route A.9 at Ousdale, about 31 miles south of Wick, for C.C. Alexander Sutherland, Ltd., 21 Francis Street, Wick, £75,653 (accepted); William Tawse, Ltd., £87,352; J. Baxter and Sons (Contractors), Ltd., £89,167; D. Logan (Builders), Ltd., £97,719.

Denbighshire.—Reconstruction of the bridge carrying the Ruabon-Llangollen Road over the Shropshire Union Canal at Wenfrwd and improvement of approach roads for C.C.—Norman Hughes and Co., Ltd., Brickfield Lane, Ruthin.

Egham, Surrey.—Construction of a lean-mix concrete carriageway (1,800 sq. yd.); alterations to existing carriageway; surfacing of carriageways (2,800 sq. yd.); formation of paved footpaths and grass verges; construction of surface water sewers; and ancillary

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works, Ripley Springs housing estate, stage V, for U.D.C. J. N. Matson, engineer and surveyor—Donovan and Denny, Ltd., 32-34 Feltham Road, Ashford.

Hull.—Road and sewer works, residential area 1a, land south of Boothferry Road, for City Council. William Morris, city engineer.—T. R. Barnett, Curson Street, Kingston upon Hull.

Ilford, Essex.—(a) Resurfacing of playgrounds at various schools, and (b) resurfacing of tennis courts at Barking Abbey School and Ilford High School for Girls for B.C.—(a) Home Counties Tarmacadam Contracting Co., Ltd., 38 Chancery Lane, London, W.C.2, £1,614; and (b) W. H. Gaze and Son, Ltd., 19-23 High Street, Kingston-upon-Thames, Surrey, £688 and £710 (recommended).

Ilkley, Yorks.—Making-up of Endor Crescent, Burley-in-Wharfedale, Southfield Road, Burley, and Oakridge Avenue, Menston, for U.D.C.—Ibmac, Ltd., Dockfield Road, Shipley, Yorks., £3,995, £3,358 and £1,973, respectively.

Monmouth.—Construction of a small bridge at Rockfield. W. S. Atkins and Partners, consulting engineers, 158 Victoria Street, London, S.W.1.—Davies Middleton and Davies, Ltd., Phoenix Works, Caerphilly Road, Cardiff.

Newcastle upon Tyne.—Following for City Council: Roadworks incidental to installation of traffic control signals at junction of Osborne Road, etc., roadworks at Scotswood Road (Noble Street) redevelopment, stage 3 and roadworks in connection with Heaton Park Road multi-storey flats site—Direct Labour (recommended). Estimated cost £1,183, £3,300 and £2,300, respectively.

Newport, Mon.—Repairs to Town Bridge.—Davies, Middleton and Davies, Ltd., Phoenix Works, Caerphilly Road, Cardiff.

Northampton.—Construction of 10ft. wide mass concrete service road, approx. 60 lin. yd. with footpaths and drainage at Kislingsbury for R.D.C.—R. J. Huggard (Contractors), Ltd., 46 Brook Street, London, W.1, £1,608 (accepted); Kinibell Construction, Ltd., £1,707; Kottler and Heron, Ltd., £1,800.

Oxford.—Construction of the Blackbird Leys link road for City Council. Main contractor, Wilson Lovatt and Son, Ltd., Clarence Street, Wolverhampton, £182,000; piling—John Gill (Contractors), Ltd., 123 Pall Mall, London, S.W.1; precast prestressed beams—Costains Concrete, Ltd., Duncan House, Dolphin Square, London, S.W.1.

Penryn, Corn.—Reconstruction of St. Thomas Street, Hill Head and New Street for B.C.—E. Thomas and Co., Ltd., Falmouth, £3,651 (recommended); W. and J. Glossop, Ltd., £4,012; A. H. Dingle, Ltd., £3,837.

Sheffield.—Following for City Council: Preliminary site works, including the construction of roads and sewers within the Park

Hill redevelopment area (stage 2, part 2)—Direct Labour. Estimated cost £114,970.

Site preparation works for erection of new fire station at Mansfield Road—William Drabble and Sons, Ltd., Mosborough, Sheffield, £4,365 (both recommended).

Wanstead and Woodford, Essex.—Surfacing in slag macadam of four roads for B.C.—H. V. Smith and Co., Ltd., Walkden House, Melton Street, London, N.W.1, £6,305 (recommended).

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Braintree and Bocking, Essex.—Replacement sewer, Grenville Road, for U.D.C. The work consists of laying approx. 280 lin. yd. of 9in. to 6in. sewers, with flexible telescopic joints, together with alterations, connections, manholes and gullies, and other appurtenant works—R. W. Hill and Co., Ltd., Beaches Drive, Chelmsford, £3,382 (subject to Ministry approval).

Bristol.—Construction of a main pumping station at Avonmouth for City Council, comprising the driving of 250 tons of steel sheet piling in a cofferdam; the driving of 320 foundation piles; 8,000 cu. yd. of excavation (which will be carried out within the limits of the cofferdam due to the nature of the ground) and the laying of 3,000 cu. yd. of concrete which will form the heavy foundation—John Howard and Co., Ltd., 13 Buckingham Gate, London, S.W.1, £175,000.

Buckingham.—Twyford sewerage and sewage disposal scheme, comprising furnishing and laying of about 2,000yd. of 6in. stoneware pipe sewers, manholes, ventilators, etc.; about 800yd. of 4in. asbestos-cement pumping main, and the construction of a sewage disposal works, consisting of sedimentation tanks, percolating filter, humus tank, feed, effluent, sludge and top-water pipes, etc., a main sewage pumping station and a sewage lifting station, and other appurtenant works for R.D.C. D. Balfour and Sons, consulting engineers, 131 Victoria Street, Westminster, S.W.1—Concrete Piling, Ltd., 10 Westminster Palace Gardens, Artillery Row, London, S.W.1, £45,745 (recommended, subject to Ministry approval).

Ilford, Essex.—Construction of Wanstead Park Road and Redbridge Lane surface water sewer for B.C.—Percy Bilton, Ltd., 113 Park Street, London, W.1, £38,098 (recommended).

Liverpool.—Supply and installation of following at South Sewage Disposal Works for City Council: Two comminutors, together with extension shafts and automatic lubricators, in inlet channels, and supply of spare parts for each machine.—Jones and Attwood, Ltd., Stourbridge, £3,967; three sets of electronically operated Lea indicating,

recording and integrating equipment—Lea Recorder Co., Ltd., Cornbrook Park Road, Manchester, 15, £3,083 (recommended).

Rayleigh, Essex.—Western Sewage Disposal Works, contract 2, for U.D.C., comprising extensions to the existing sewage disposal works, consisting of the construction of reinforced concrete grit channels, storm water tanks, settlement tank, humus tanks and heated sludge digestion tank, concrete sludge drying beds, a pumping station and boiler and mess room, together with all works incidental thereto. Lemon and Blizard, consulting engineers, 59 Tufton Street, Westminster, S.W.1—Bosworth and Wakeford, Ltd., Lanford Road, Rugby, £90,727. Work to commence shortly.

South Westmorland.—Construction of about 900yd. of 6in. sewers and a small sewage disposal works at Grayrigg, near Kendal, for R.D.C. W. E. R. Thomas, engineer—Norman Jackson, Gatebeck, Kendal, Westmorland, £4,879. Work commenced.

South Westmorland.—Levens sewerage and sewage disposal construction for R.D.C. Ward, Ashcroft and Parkman, consulting engineers, 38 The Temple, Dale Street, Liverpool, 2—Norman Jackson, Gatebeck, Kendal, Westmorland, £35,826 (subject to Ministry approval).

Tottenham, Middx.—Modification to culvert and intercepting sewers to Stonebridge Brook improvement, contract 5, for B.C.—Turiff Construction Corporation, Ltd., Budbrooke Road, Warwick.

Wallasey, Ches.—Construction of Upton Road-Sandbrook Lane storm water outfall sewer, for B.C.—Conduit Construction Co., Ltd., 3 and 5 Greenheys Lane, Manchester, 15, £39,346.

STREET LIGHTING

Cannock, Staffs.—Group A lighting scheme for route B.5013, Station Road, Hednesford; group B lighting scheme for various roads throughout the urban district, for U.D.C. Edwin Lomax, engineer and surveyor—Engineering and Lighting Equipment, Ltd., Sphere Works, Campfield Road, St. Albans, Herts., £1,914.

Ilford, Essex.—Provision of street lighting, district roads, stage III, for B.C.—Penmar and Co., Ltd., 43 Chippenham Road, London, W.9, £12,926 (recommended).

King's Lynn, Norfolk.—Disconnection and dismantling of the existing tungsten lighting and the erection of tubular steel columns, fixing of wall brackets, fixing and wiring of lanterns, lamps and control gear for B.C., comprising: (a) Group "A" lighting, 25ft. mounting height, 400-watt mercury fluorescent colour-corrected lighting; (b) group "B" lighting, 15ft. mounting height, 125-watt mercury fluorescent colour-corrected, and 45-watt sodium vapour lighting. H. G. Ridler, borough engineer.—



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Abacus Engineering, Ltd., 2 King Street, Nottingham, £2,761 (accepted); Bagshaws (Contractors), Ltd., £2,909; S. A. Inston and Co., £2,953; Machinery Installations, Ltd., £4,264. Work commencing Oct.

Redcar, Yorks.—Erection of street lighting units in Redcar for B.C.—Cohen Bros. (Electrical), Ltd., 11 King Edward Buildings, Bury Old Road, Manchester, 8, £2,309.

Sunderland, Dur.—Supply of following for B.C.: Street lighting columns for Town End Farm estate—Concrete Utilities, Ltd., 11 Albert Square, Manchester; 69 sodium lanterns—Engineering and Lighting Equipment Co., Ltd., Sphere Works, St. Albans, Herts.; 37 lighting columns and lanterns for the Howick Street area—G.E.C., Ltd., Magnet House, Gallowgate, Newcastle upon Tyne.

Wanstead and Woodford, Essex.—Supply of services in connection with conversion of street lighting at Snakes Lane for B.C.—London Electricity Board, £920 (recommended).

GOVERNMENT CONTRACTS

Admiralty.—Particulars of contracts over £4,000 in value, placed by Navy Works Department:

Morayshire: Thermal insulation—William Gibson and Co., Paisley.

Somerset: Prefabrication and erection of accommodation—Medway Buildings and Supplies, Ltd., Rochester.

Air Ministry.—Contracts to the value of £4,000 or over for the week ended Sept. 2:

Building work: Lyneham, Wilts.—A. I. Dunning and Sons (Weyhill), Ltd., Weyhill, Andover, Wilts.; Llanbedr, Merionethshire—Evans Builders (Wrexham), Cambrian Yard, Bridge Street, Wrexham, Denbighshire; Leconfield, Yorks.—F. Hall and Sons, Ltd., 61 Alexandra Road, Kingston-upon-Hull, Yorks.; Ely, Cambs., and Lyneham, Wilts.—J. Jarvis and Sons, Ltd., 239 Vauxhall Bridge Road, London, S.W.1; Bracknell, Berks.—J. H. Jones and Sons, Ltd., Highway Works, Maidenhead, Berks.; Newton, Notts.—Robert Marriott, Ltd., Midland Works, Rushden, Northants.; Bovingdon, Herts.—Jesse Mead, Ltd., 176 Berkhamstead Road, Chesham, Bucks.; Harrogate, Yorks.—F. Shepherd and Son, Ltd., Blue Bridge

Lane, York; Scampton, Lincs.—R. M. Phillips and Son, Ltd., Estate Yard, Brigg, Lincs.

Surface water drainage (improvements to): Lyneham, Wilts.—Hadsphalitic Construction Co., Ltd., Johnston House, Hatchlands Road, Redhill, Surrey.

Site clearance and rehabilitation work: Harpur Hill, Derbyshire—Kirkland (Derby), Ltd., 34-36 Curzon Street, Derby.

Artificers' work: Bushey Hall (U.S.A.F. School), Herts.—Haymills (Contractors), Ltd., Empire House, Hanger Green, Western Avenue, London, W.5.

Painting work: Biggin Hill, Kent, Kenley, Surrey, etc.—Spraycraft Co., Ltd., 101-2 Palace Road, Bromley, Kent.

Internal heating installation, etc.: Watton, Thetford, Norfolk—Richard Crittall and Co., Ltd., 151 Great Portland Street, London, W.1.

Repair and maintenance of ocean weather ships: James Lamont and Co., Ltd., Dock Breast, Greenock, Renfrewshire.

Ministry of Finance, Northern Ireland.—Contracts exceeding £250 in value placed during the period Aug. 22 to Sept. 2, inclusive:

Supply, etc., electric lifts: New Government Offices, Stormont—Otis Elevator Co., Ltd., Falmouth Road, London, S.E.1.

External painting and cleaning to 18 wooden cottages: Baronscourt Forestry Centre—Freeborn Bros., Seem Park, Sion Mills, Co. Tyrone.

Construction and completion: Telephone Repeater Station, Killeen, Co. Armagh—H. Cole, The Mall, Newry, Co. Down.

Repairs, etc., general structure, etc.: Courthouse, Hillsborough—S. Graham and Son, Dromore Road, Hillsborough.

L.P.H.W. heating, etc.: Loughry Agricultural College, Cookstown—Musgrave and Co., Ltd., St. Ann's Works, Belfast, 5.

Periodical plumbing and gasfitting, etc.: Various establishments in Northern Ireland—D. W. Stothers and Co., Ltd., 68 Orby Road, Belfast, 5.

Repair to carriageway and forecourt: Law Courts Building, Belfast, 1—The Limmer and Trinidad Lake Asphalt Co., Ltd., 58 Howard Street, Belfast, 1.

Ministry of Works.—Contracts placed for week ended Aug. 27:

Devon: Joint Office Building, Stover Park, Newton Abbot—external and internal

decorations—W. E. Gaye and Co., Ltd., 22 Quay Terrace, Newton Abbot.

Hampshire: Post Office Engineering Depot, Drill Hall, Eastleigh—adaptations—A. E. Jukes and Son, Ltd., 40-60 King George's Avenue, Millbrook, Southampton.

Inverness-shire: Post Office and Telephone Exchange, High Street, Elgin—erection—W. Arnott McLeod and Co., Ltd., Russell Road, Edinburgh, 11.

Lancashire: Premium Bonds Office, Lytham St. Anne's—repairs to soil pipes, etc.—R. Fielding and Son (Builders), Ltd., Stanhope Road, Blackpool; Post Office, Corn Exchange, Liverpool—modernisation—Wm. Moss and Sons, Ltd., Yardley Road, Kirkby Industrial Estate, Liverpool.

London: Admiralty, Whitehall, S.W.1—internal decoration—Howe and White, Ltd., 35 Manor Road, Wallington, Surrey.

Middlesex: Joint Office Building, Harrow Road, Wembley—alterations and additions—Buckingham and Sons, Ltd., Vivian Avenue, Hendon, N.W.4; Government Buildings, Yeading, Hayes—external decoration—Deeds (Hounslow), Ltd., 173 Staines Road, Hounslow.

Staffordshire: Post Office, Cradley Road, Cradley Heath—erection new foundry extension for public office—Alfred Wright and Sons (Blackheath), Ltd., Long Lane, Blackheath, Birmingham.

Post Office.—Contracts for duct laying, etc., works to the value of £4,000 and over placed during the week ended Sept. 3:

The North Midland Construction Co., Ltd., Portland Works, Daybrook, Nottingham.

War Department.—Contracts placed for the week ended Sept. 6:

Cumberland (Longtown): roadwork—H. V. Smith and Co., Ltd., Edinburgh.

Hampshire (Blackdown): redecoration—Field, Ltd., Reading.

London: Painting—T. H. Kenyon and Sons, Ltd., London, W.9; heating—Stitson White and Co., Ltd., London, W.1.

Shropshire (Hadley): heating—Saunders and Taylor, Ltd., Birmingham.

Surrey (Sandhurst): redecoration—Donald Humberstone and Co., Ltd., Louth.

Wiltshire (Shrivenham and Watchfield): miscellaneous—E. W. Beard, Ltd., Swindon; Larkhill—painting and decorating—Fields, Ltd., Reading; (Corsham): painting—S. Spencer and Co., Ltd., Southampton.

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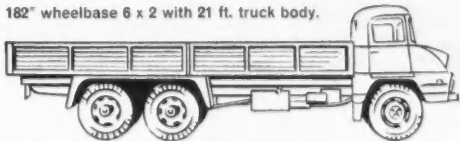
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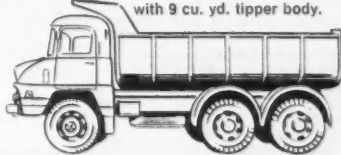
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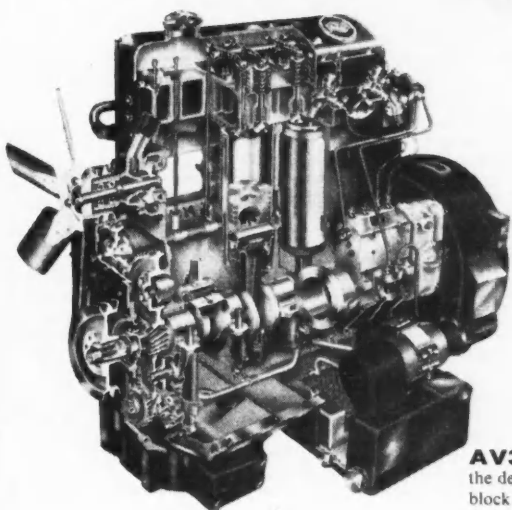
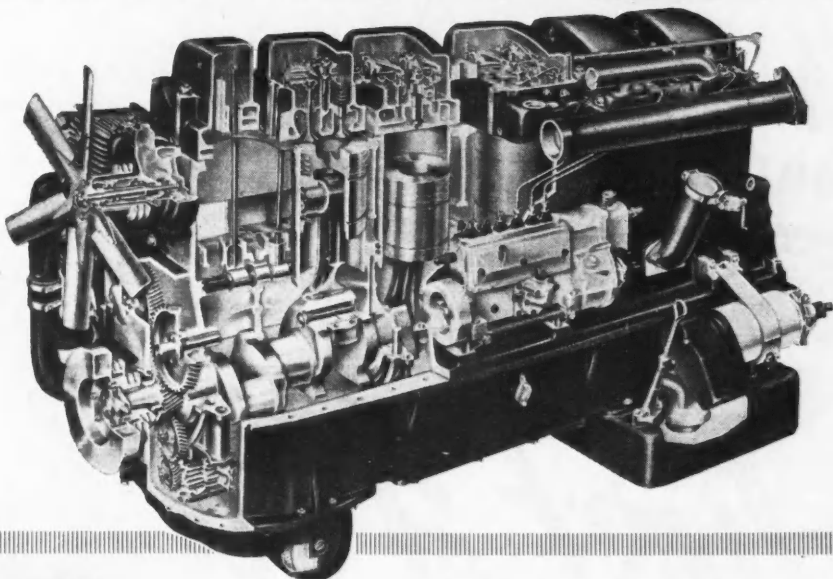
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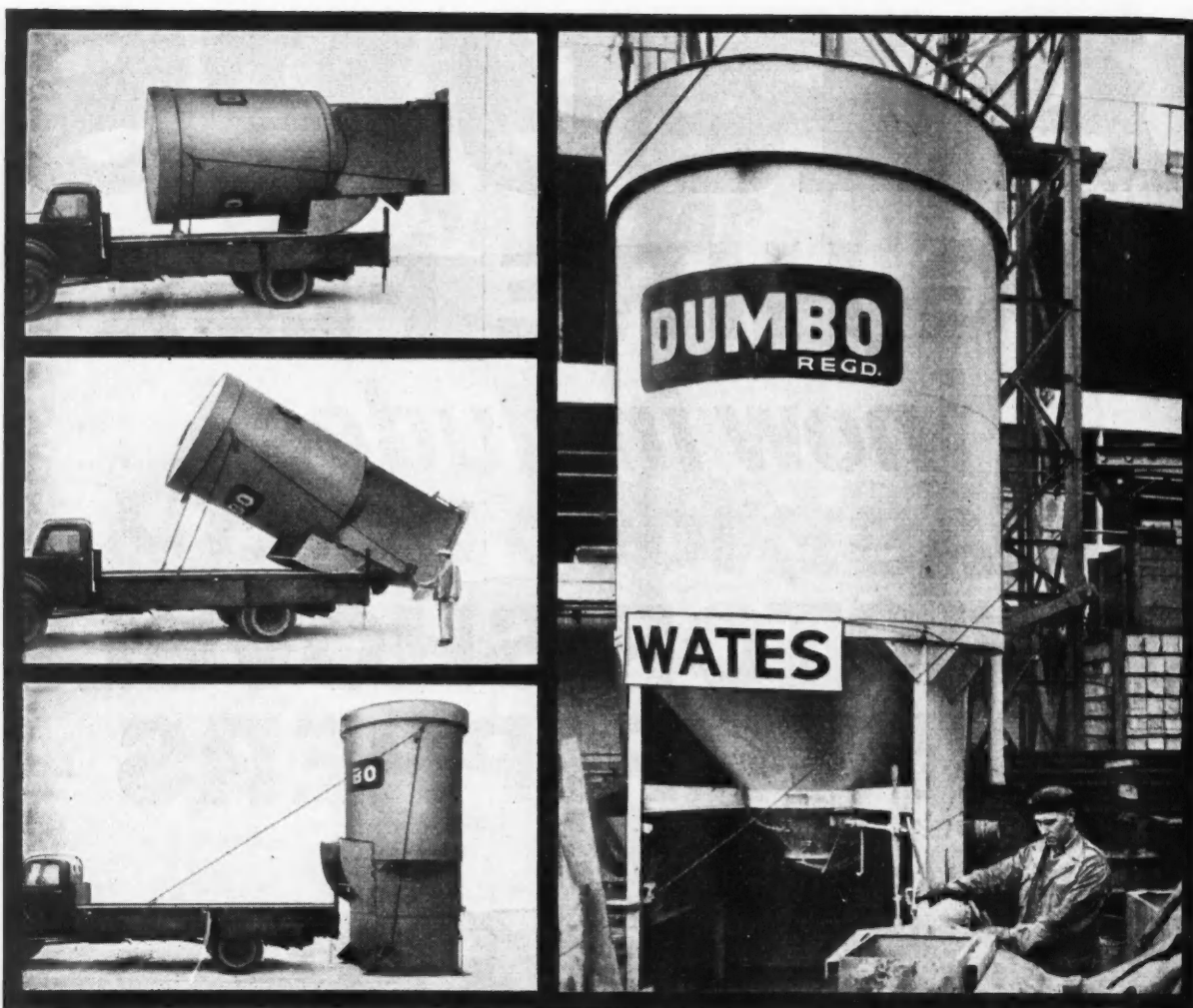
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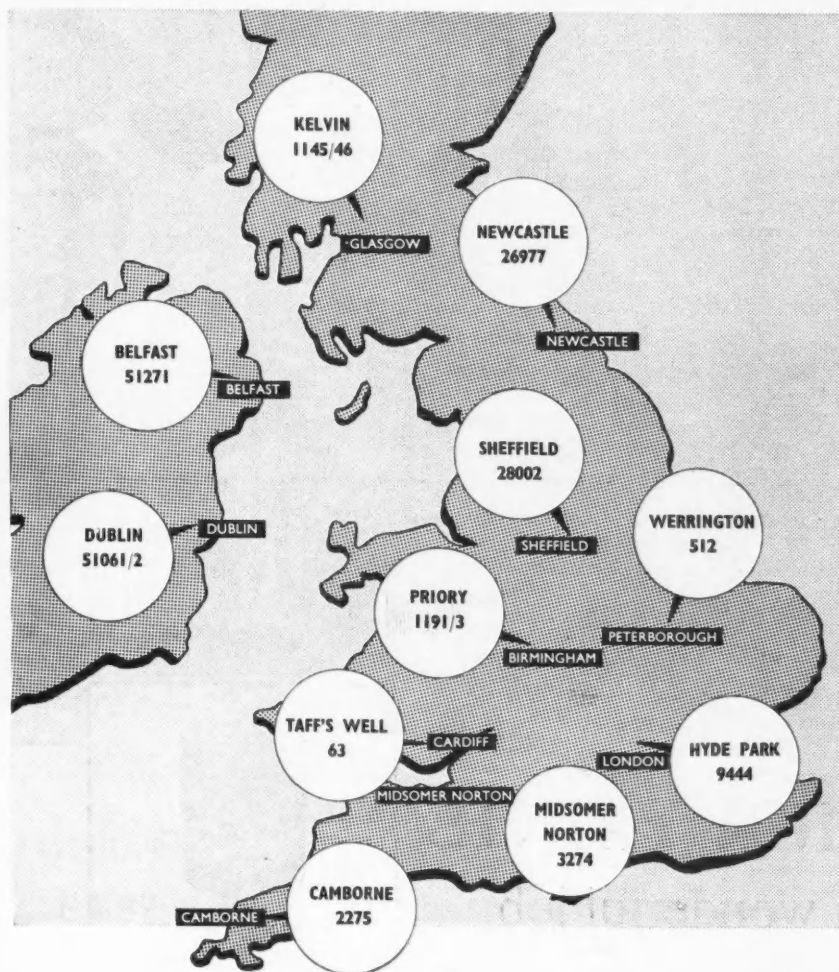
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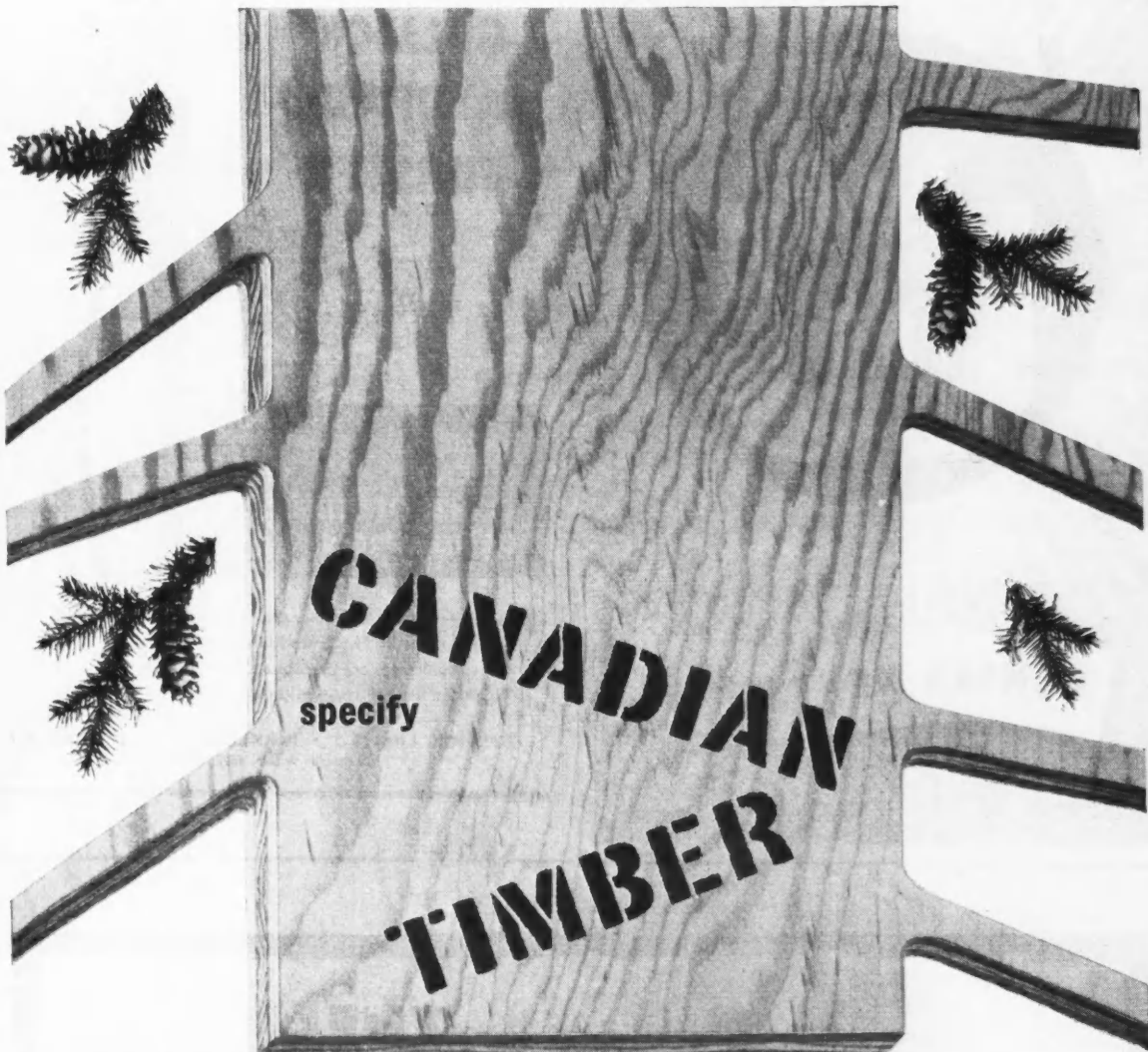
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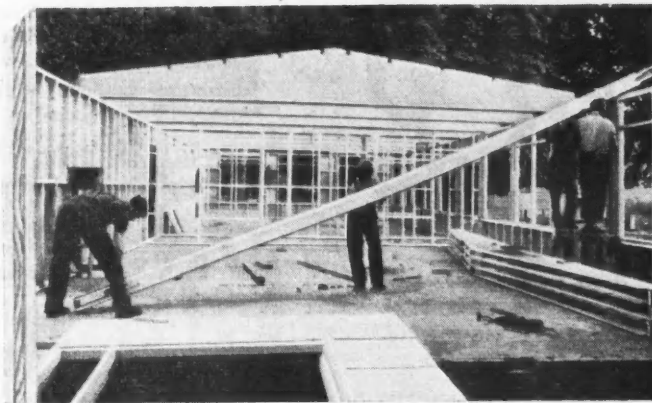
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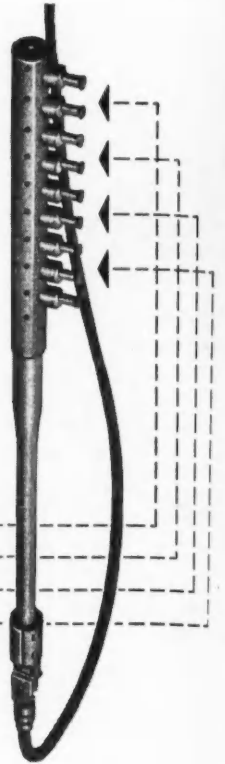
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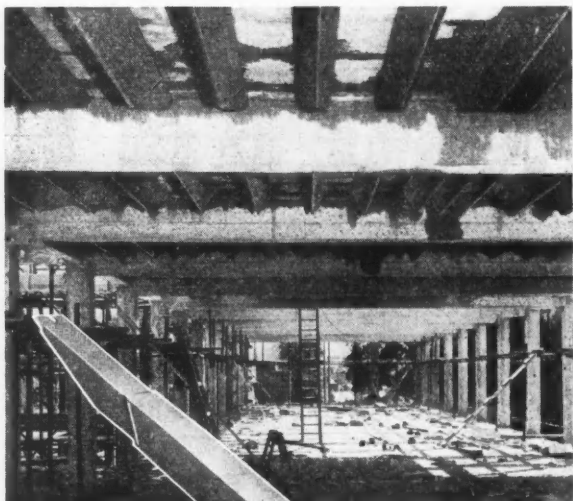
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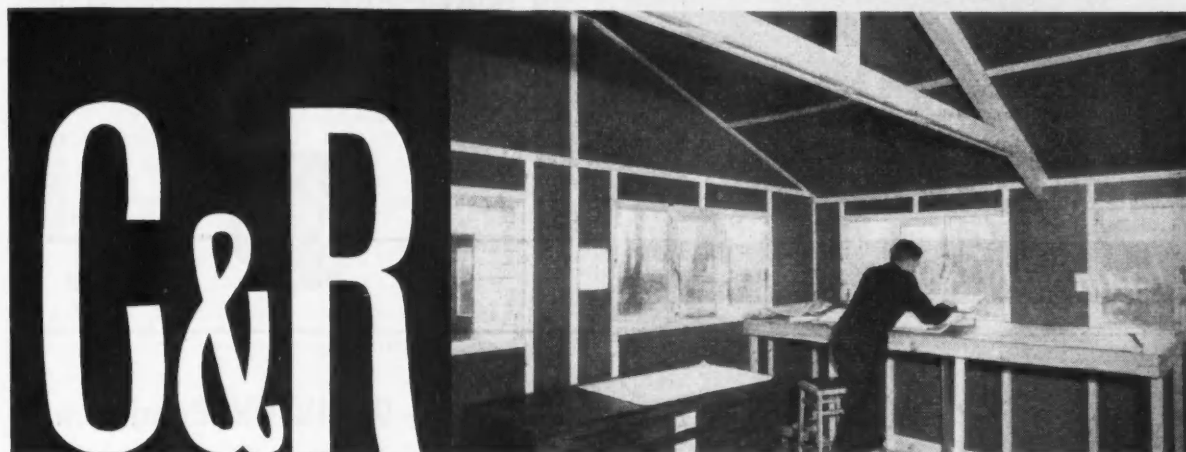
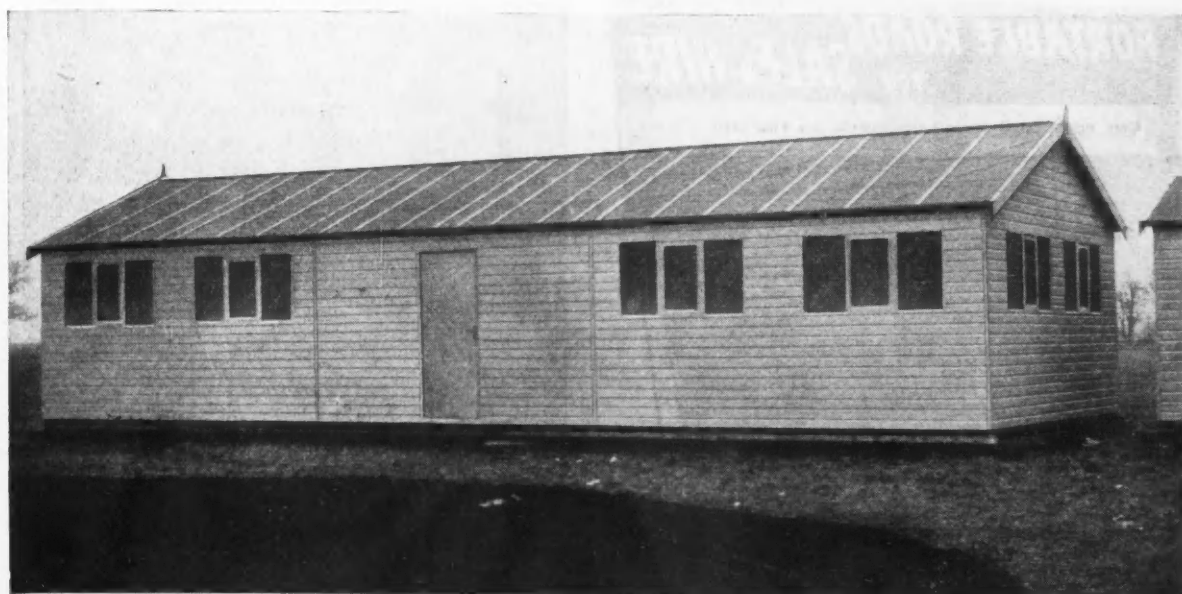
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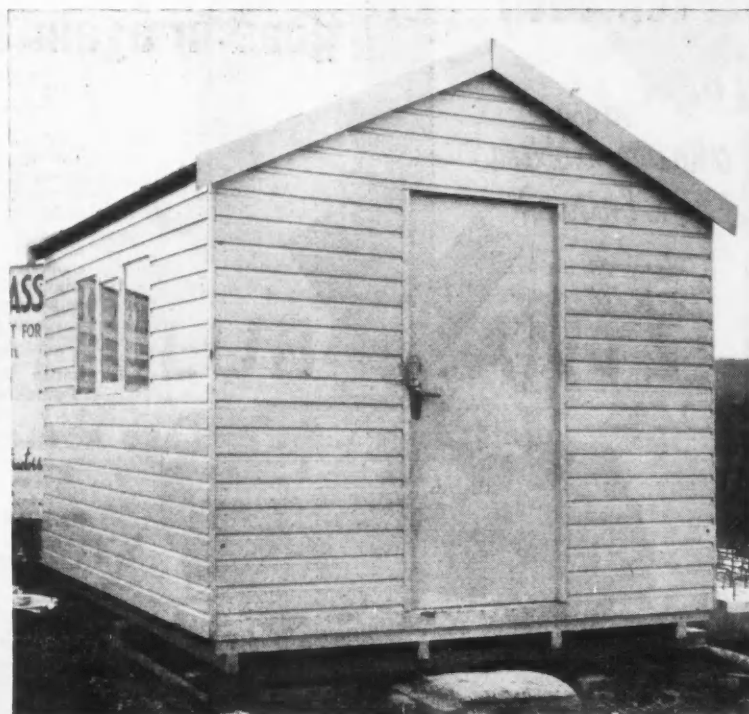
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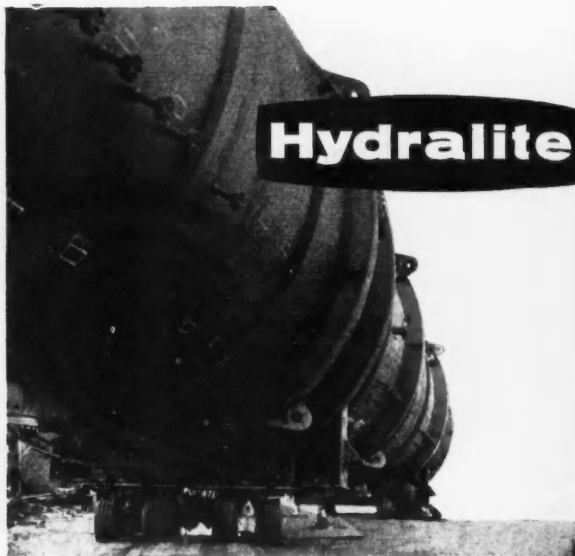
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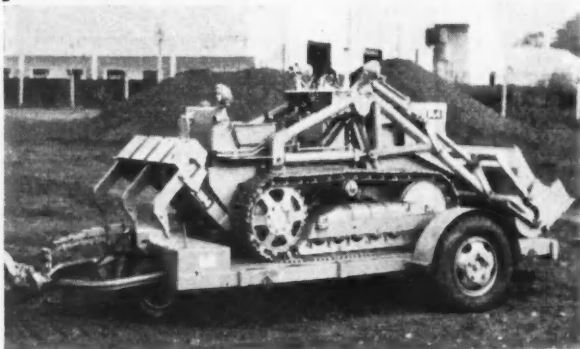
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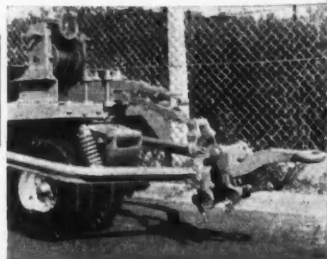
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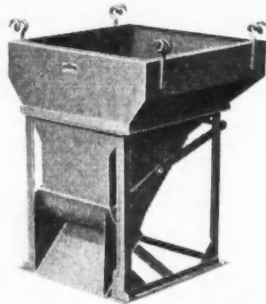
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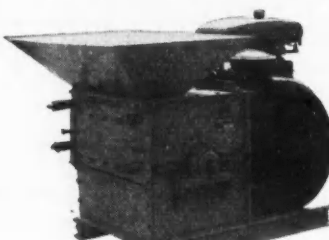
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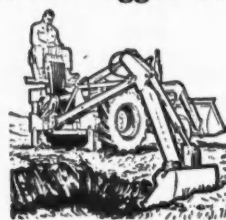
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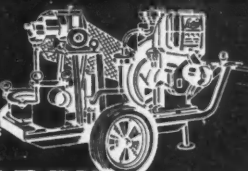
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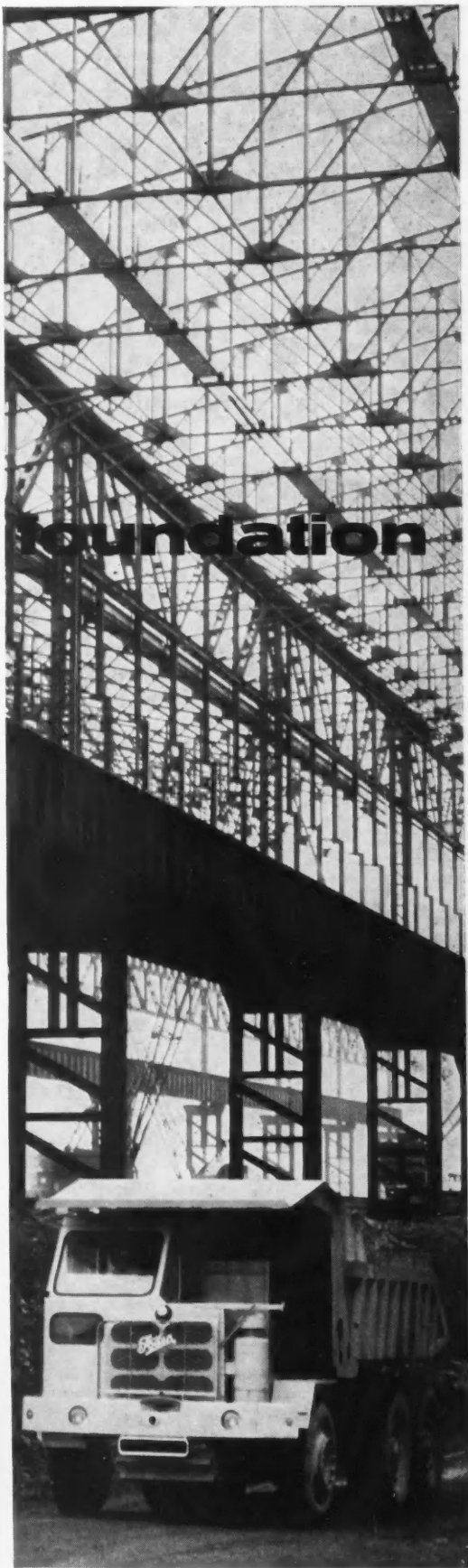
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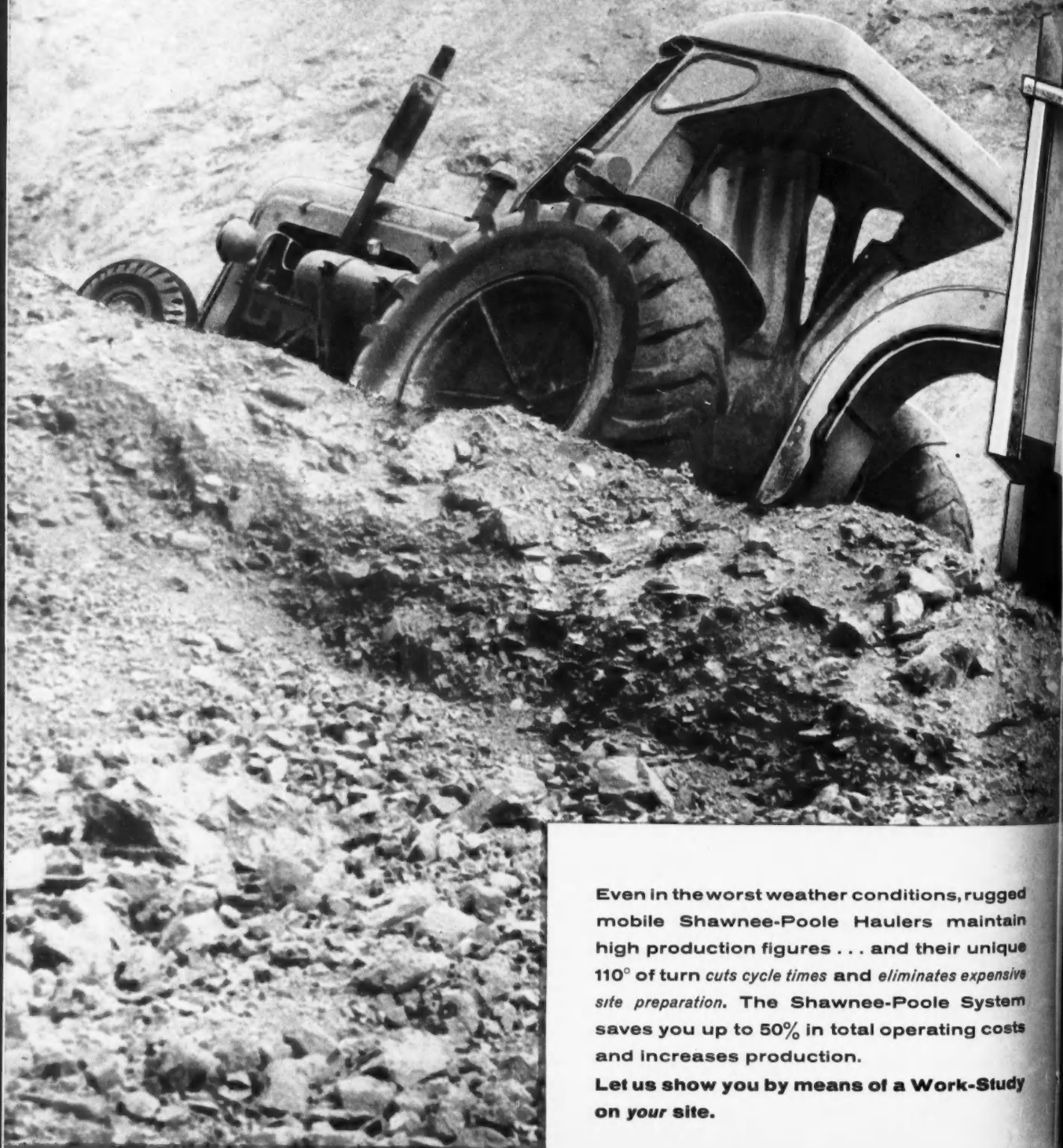
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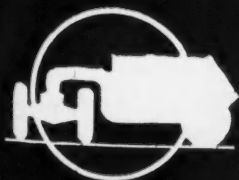
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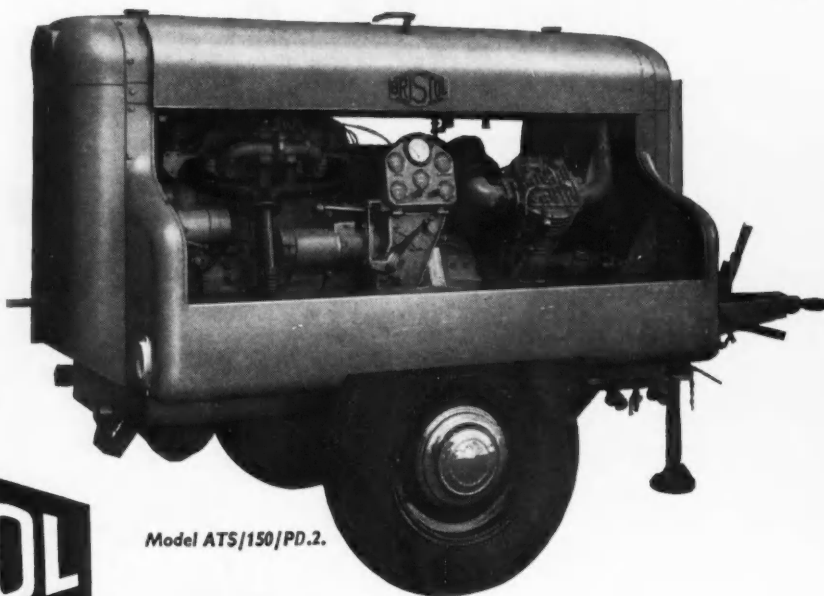
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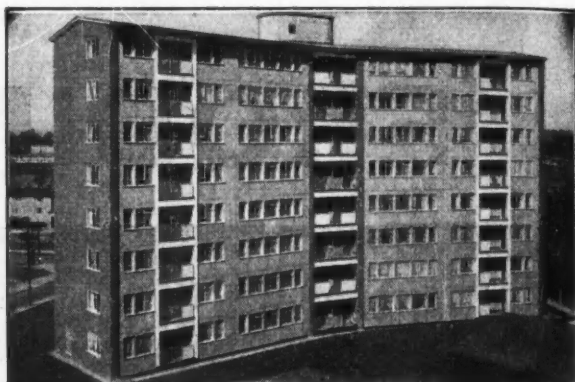


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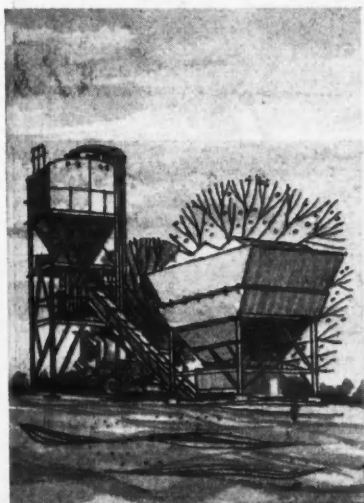
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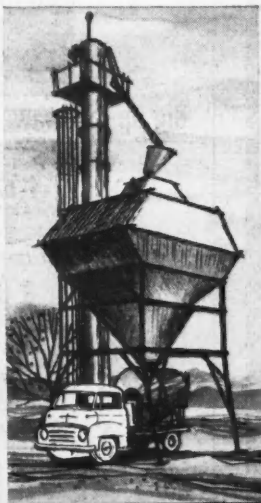
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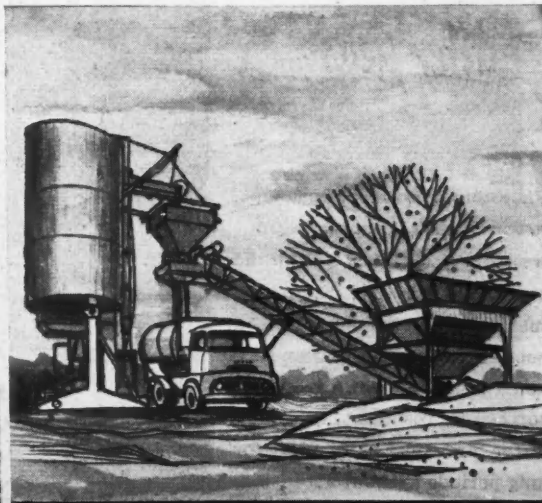
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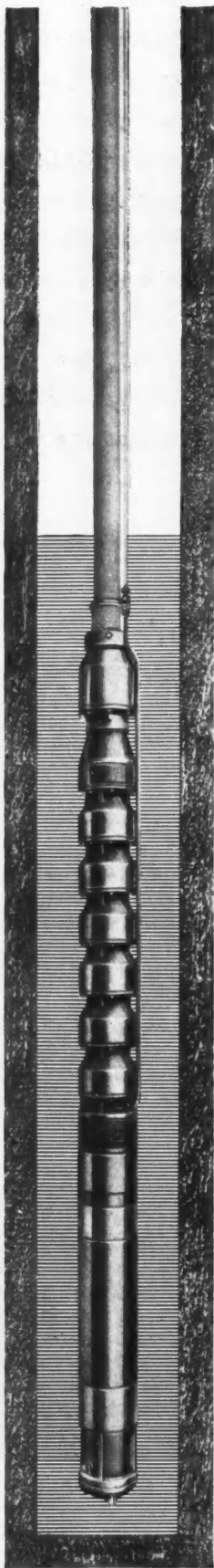
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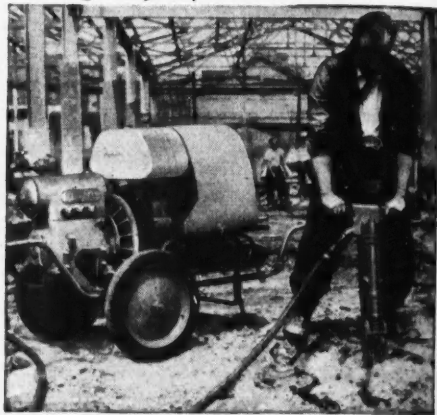
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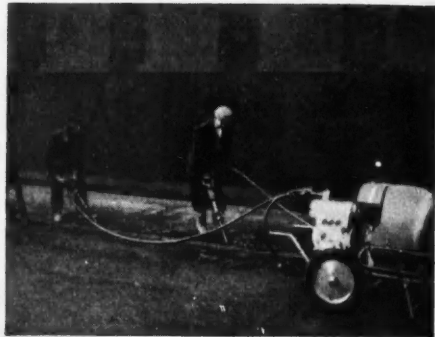
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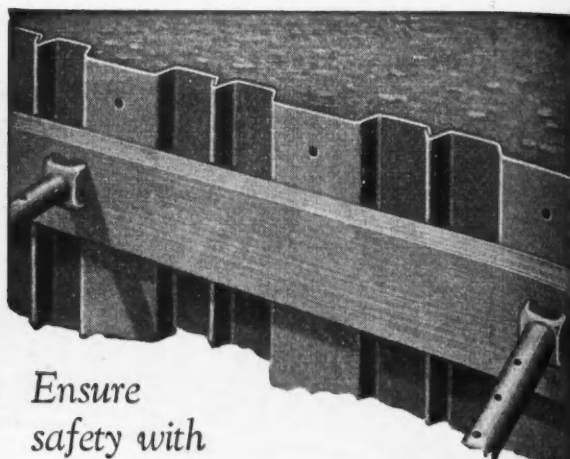
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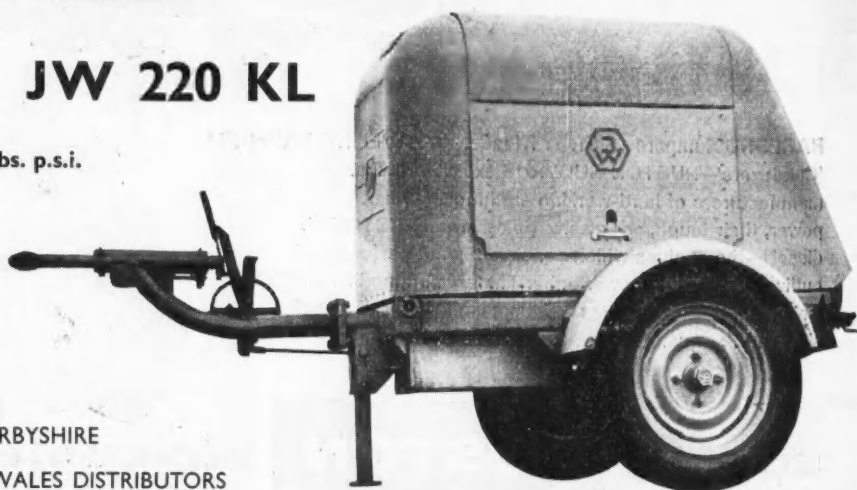
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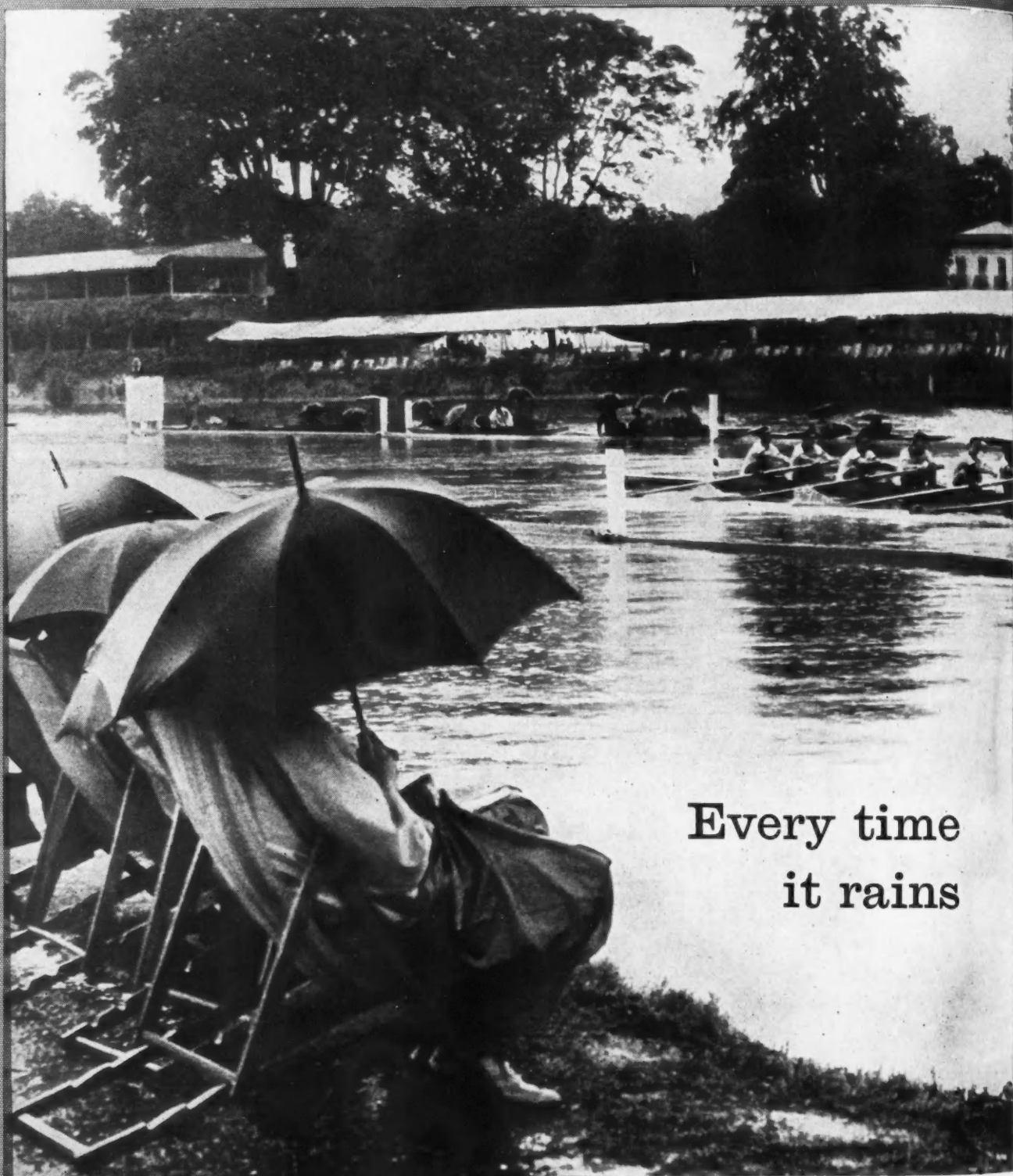
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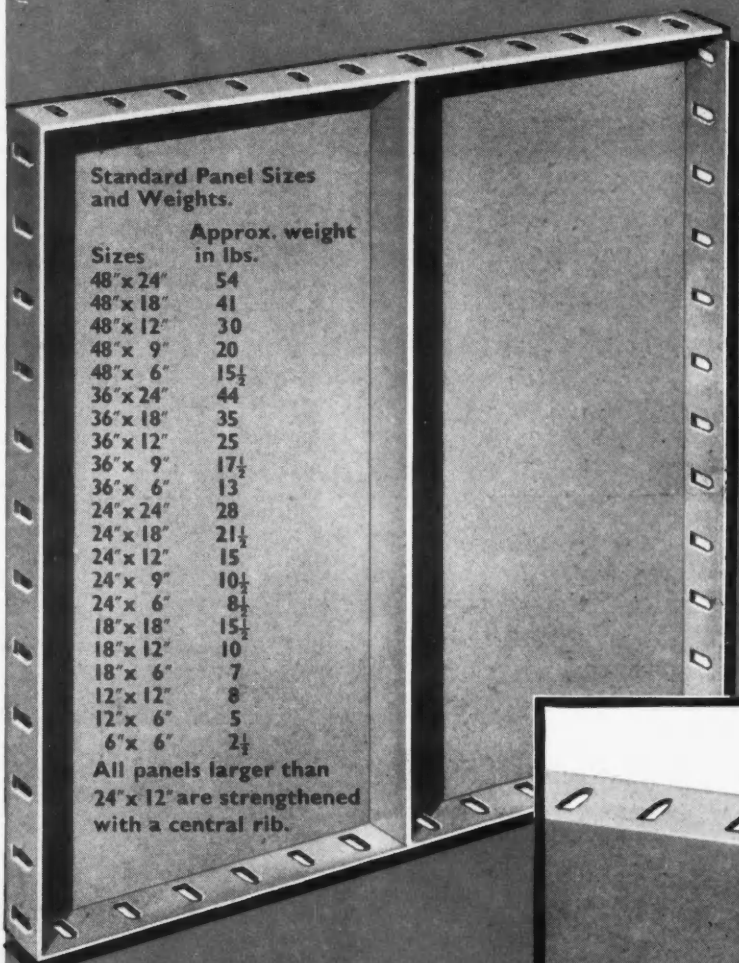
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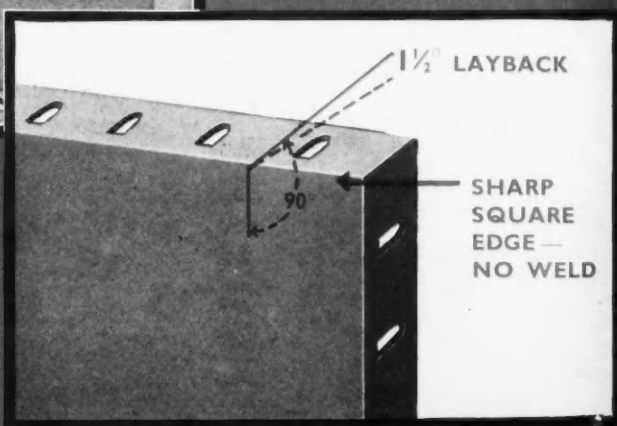
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48" x 18"	41
48" x 12"	30
48" x 9"	20
48" x 6"	15½
36" x 24"	44
36" x 18"	35
36" x 12"	25
36" x 9"	17½
36" x 6"	13
24" x 24"	28
24" x 18"	21½
24" x 12"	15
24" x 9"	10½
24" x 6"	8½
18" x 18"	15½
18" x 12"	10
18" x 6"	7
12" x 12"	8
12" x 6"	5
6" x 6"	2½

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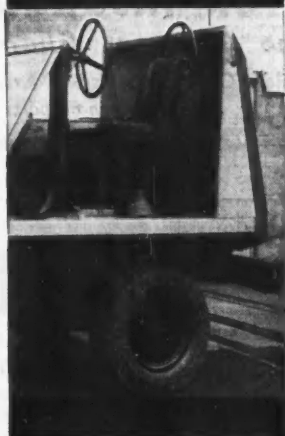


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CONTRACTORS' GUIDE TO AGGREGATES

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DANGERFIELD, F. J. & CO., LTD., 261A Finchley Rd., London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)
FERRIS AND AGGREGATES, LTD., Northampton Rd. Quarries, Rushden (2354/5). (See Northants.)
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ST. IVES SAND AND GRAVEL CO., LTD., 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) (See Huntingdonshire for details.)
WEBB, G., CAMBRIDGE, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)
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BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)
BULL BROS., S. AND L., LTD., 126A High Street, Winchester. (Tel.: 2264.) (See Hampshire.)
COFF, HARRY A., LTD., Buckhurst Hill, Chesham, Bucks. (Tel.: Ascot 1026/7.) Sand, all grades of washed aggregates, hardcore, clinker, ashes and hoggins.
CURTIS, J. AND SONS, LTD., Botley Works, Oxford. (Tel.: Oxford 41081/2/3.) Sand and all grades of washed aggregates. Pits at Radley, near Abingdon. (Tel.: Abingdon 441.)
DANGERFIELD, F. J. & CO., LTD., 261A Finchley Rd., London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)
GRUNDON, S. (EWEIME 20), LTD., London Office (Tel.: Uxbridge 4156). All grades washed aggregates. Path hoggins, broken stone, building sand.
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LONDON BALLAST CO., LTD., (Tel.: Paddington 8064.) 55A Portchester Terrace, North Paddington, W.2.
POOLE (LECHLADE), LTD., Gravel Pit, Burford, Oxford. Lechlade, Glos.
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NASH ROCKS STONE AND LIME CO., LTD., Prestelgne, Radnor. (Tel.: Prestelgne 352.) (See Herefordshire for details.)
SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington (Tel.: 961), Salop.

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BICESTER STONE CO., LTD., Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 236.) Manufacturers and suppliers of all grades limestone, tarmacadam, dry, pitching stone, hardcore, etc.
COFF, HARRY A., LTD., Buckhurst Hill, Chesham, Bucks. (Tel.: Ascot 1026/7.) (See Berkshire.)
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DRINKWATER, W. W. (WILLESDEN), LTD., Rush Green, Denham, Bucks. (Tel.: Denham 2241/2/3.)
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MARLOW SAND AND GRAVEL CO., LTD., Westhorpe Pit, Little Marlow, Bucks. (Tel.: Marlow 379.)
STUART MACKEY, LTD., Gordon Road, High Wycombe. (Tel.: High Wycombe 2591/2.)
WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Bedfordshire.)

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DANGERFIELD, F. J. & CO., LTD., 261A Finchley Rd., London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)
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WIVENHOE SAND, STONE AND GRAVEL CO., LTD., Wivenhoe, near Colchester, Essex. (Tel.: Wivenhoe 231.) High-quality washed aggregates of all grades.

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BENGRY AND SONS, LTD., Longmoor, Kingsland, Kent. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)
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CONTRACTORS' GUIDE TO AGGREGATES

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AMEY'S AGGREGATES, LTD., Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.)
BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicestershire. (For details, see Leics.)
BULL BROS., S. AND L., LTD., 126A High Street, Winchester. (Tel.: 2264.) Concreting aggregates (reconstituted, pit-mixed, weightbatched to meet any specification); also ballast, hoggins, path gravel and sand from own pits at Fawley, Lockerley, Ringwood, Romsey, Southampton and Totton.
DANGERFIELD, F. J. AND CO., LTD., 261A Finchley Road, London, N.W.3. (Tel.: HAMPSHIRE 8044/8.) For all road aggregates, kerbs, setts. (See London.)
GILSON, S. C. AND SONS, LTD., Holcombe, near Bath. (Tel.: Stratton-on-the-Fosse 243.)
HALL AND CO., LTD., Baltic Wharf, Marine Parade, Southampton. (Tel.: Southampton 21234.) and at Portsmouth. Pits at Ringwood, Highbridge and Totton. Gravel aggregate, concreting, plastering and building sand.
HASKINS, G. AND SONS, Queen Street, Emsworth. For washed sands and graded aggregates, path and road gravels, hoggins, clinker, ashes. (Tel.: Emsworth 227.)
MOREYS (VERWOOD), LTD., Verwood, Wimborne, Dorset. (Tel.: Verwood 234.) Concrete aggregates, building sand, hoggins, path gravel, washed and graded concrete aggregates. All sizes. Washed sharp and fine sands.
PETERSFIELD ENGINEERING AND CONCRETE PRODUCTS, LTD., Petersfield. (Tel.: Petersfield 1079.) Concrete aggregates, washed and graded filter media.
PRIVETT, W. G. AND SONS, LTD., Drayton Lane, Portsmouth. (Tel.: Cosham 70059.) Concrete aggregates, building sand, hoggins, ashes, washed and graded filter media.
RALPH OF BAINSTOCK, LTD., 37 Kemphost Lane, Basingstoke, Hants. (Tel.: 85.) Concrete aggregates, building sand, path gravel, hoggins, etc.
WESSEX SAND AND GRAVEL CO., LTD., 126 Hillside Avenue, Southampton. (Tel.: 56616.) Pits at Romsey and Fair Oak. Concrete aggregates, hoggins, building sand, etc.
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BENRGY AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) Suppliers of all grades of crushed concrete aggregates, road metalting, pitching stone, hardcore and coated macadam.
CLEE HILL TRANSPORT AND ROLLING CO., LTD., Ludlow, Salop. (Clee Hillstone 284.) (See Shrops.)
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WHITECLIFF QUARRIES AND BRICKWORKS, LTD., Coleford, Glos. (Tel.: 3158/9.) (See Gloucestershire.)

HERTFORDSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)
DANGERFIELD, F. J. AND CO., LTD., 261A Finchley Road, London, N.W.3. (Tel.: HAMPSHIRE 8044/8.) For all road aggregates, kerbs, setts. (See London.)
EASTWOODS SALES, LTD., Eastwood House, City Road, E.C.1. (Tel.: Clerkenwell 2040.) Broxbourne pit. (Tel.: Hoddeston 2436.) Producers and distributors of all grades of washed aggregates.
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HALL AND CO., LTD., Railway Yard, Orchard Road, Stevenage (Tel.: 775), and at Hatfield. Gravel aggregates, concreting, plastering and building sand.
ST. IVES SAND AND GRAVEL CO., LTD., 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) (See Huntingdonshire for details.)
WEBB, G. CAMBRIDGE, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)
WINFIELD, HENRY, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamstead 1008/9.) Pits at: Hemel Hempstead, Watford, West Hyde, Rickmansworth. Concrete aggregates, hoggins, building sand.

HUNTINGDONSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)
FERRERSAND AGGREGATES, LTD., Northampton Road Quarries, Rushden (2354/5.) (See Northants.)
GRAVEL PRODUCTS (HUNTS), LTD., St. Neots, Hunts. (Tel.: St. Neots 123.) Pits at Little Paxton, near St. Neots. (Tel.: St. Neots 300.) Deliveries in Beds., Hunts. and South Cambs.
NENE BARGE AND LIGHTER CO., LTD., Market Chambers, Peterborough. (Tel.: 5534/5.) and Ship End Quarries, Wansford, near Peterborough (Tel.: Wansford 384/5.) Roadstone, hardcore, broken stone, ballast, ashes, silica clay and sand.
ST. IVES SAND AND GRAVEL CO., LTD., 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) Producers of all grades of washed sand and gravel. Ready mixed concrete. Precast concrete of every description.

HUNTINGDONSHIRE

WEBB, G. CAMBRIDGE, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)
WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Bedfordshire.)

KENT

BRASTED SAND PITS, Brasted, Kent. (Tel.: 586.) London office: (Tel.: Eilery Street, S.E.15.) New Cross 3337. Soft and plastering sands, lime and sand-mix dry, hardcore, S.H. bricks, ashes, etc.
BROWN BROS. (SITTINGBOURNE), LTD., Chalkwell Road, Sittingbourne, Kent. (Tel.: Sittingbourne 330.) Sand, ballast, shingle, hardcore, clinker, breeze blocks, etc.
CLUBS, J. LTD., Dartford, Kent. (Tel.: Dartford 254.) Pits in North Kent, Medway area and Sevenoaks district. All washed and crushed gravel aggregates, concreting and building sand.
DIAMOND TREAD CO. (1938), LTD., Ditton Court Quarry, Larkfield, near Maidstone. (Tel.: West Malling 3444.) Quarry owners: tarmacadam, bituminous macadam and dry road stone manufacturers and suppliers. Head Office: 21-22 Old Bailey, London, E.C.4. (Tel.: 6111/2.)
DIAMOND TREAD CO. (CHART), LTD., Swan Lane Quarries, Little Chart, Ashford, Kent. Quarry owners: tarmacadam, bituminous macadam and dry roadstone suppliers. All inquiries to Area Office: Ditton Court Quarry, Larkfield, near Maidstone, Kent. (Tel.: W. Malling 3444.)
HALL AND CO., LTD., Canning Street, Maidstone. (Tel.: Maidstone 51051;) and at Folkestone and Hayes. Pits at Linsted, near Larkfield. Gravel aggregates, concreting, plastering and building sand, Surecrete precision-mixed concrete.
HARRIS, M. P. AND CO., LTD., Station Road, Baddock Wood, Kent. (Tel.: 365.) (See Sussex.)
TILBURY CONTRACTING AND DREDGING CO., LTD., Postley, Maidstone. (Tel.: Maidstone 55401/2.) Suppliers of tared, bituminous and dry Kentish ragstone, for sea walling, asphalt fillers, Scotch granite and kerbing.

LANCASHIRE

BROOMBYS, LTD., Sandside, Milnthorpe (Tel. 3251/2.) Westmorland. (See Westmorland.)
BUCKTON QUARRY. Broken stone, all grades. (Tel.: Mossley 123.) Or write Main Road, Oldham.
CASTLETON SAND AND GRAVEL QUARRIES, LTD., Troys Lane, Castleton, nr. Rochdale. (Tel.: Castleton 57100.) Lee Quarries, Bacup. (Tel.: Bacup 287.) Washed pit sand, crushed washed stone aggregates: pitching stone.
CROXEN GRAVEL, LTD., Cheadle, Stoke-on-Trent. (Tel.: Staff. 393.) Manchester Office: Blackfriars 3766/7. Plant capacity, 2,000 tons per day.
DUNNING AND SON, LTD. (See Shropshire.)
HARTLEY, JOHN W. LTD., Lundsfield Quarry, Carnforth, Lancs. (Tel.: Carnforth 100.) Large producers of highest quality washed sands, clean washed natural pebble and crushed gravel aggregates for all construction purposes.
HILTON GRAVEL, LTD., Rice Street, Liverpool Road, Manchester, 3. (Tel.: Deansgate 5455 and 5456.) Quarries at Chorley, Preston, Chorley, and at Longton, Stoke-on-Trent. (Tel.: Longton 32196.)
HULLAND GRAVEL CO., LTD., Cheadle, Stoke-on-Trent. (Tel.: Cheadle 2232/4, 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester, 21. (Tel.: Chorlton 2274/5.)
PENMAENMAWR AND WELSH GRANITE CO., LTD., all sizes and gradings of crushed granite aggregate. Immediate delivery ex stock.
Liverpool and Preston Depots:
 Office: 7 Picton Road, Liverpool, 15. (Tel.: Sefton Park 7261.)
 Manchester Depot:
 Office: Cornbrook Road, Manchester, 15. (Tel.: Trafford Park 3630.)
ROUND-O QUARRIES, LTD., Helsby Street, Warrington. (Tel.: 35451—4 lines.) Building and concrete sand and shale.
TERN HILL SAND AND GRAVEL CO., LTD., Alimington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)
TRENTHAM GRAVEL CO., LTD., Lordley Quarries, Willoughbridge, near Market Drayton, Salop. (Tel.: Pipe Gate 304/5.) All sizes crushed or natural washed gravel. Twice-washed sharp concrete sand. Plastering sand. Plant capacity: 2,000 tons per day.
WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) Local Offices and pits: Chorley 3923 and Wigan 82039.
WITHERS LIMESTONE, LTD., Black Lane Quarry, Carnforth. (Tel.: Carnforth 327.) Graded limestone aggregate to B.S.S., all sizes. Immediate delivery ex stock.
X.L. GRANITE (INGLETON), LTD., Head Offices: Clapham, via Lancaster. (Tel.: Clapham 316/9.) Works Tel.: Ingleton 231. All sizes and gradings of Ingleton granite aggregate.

LEICESTERSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)
CLIFFE HILL GRANITE CO., LTD., Markfield, near Leicester. (Tel.: Markfield 561/2/3.) Granite aggregates to B.S.S. All sizes. Tared and bituminous granite, concrete slabs and kerbs. Transit-mixed concrete.
DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 276 and 298; Duston 505.) (See Northamptonshire.)
ENDERBY AND STONEY STANTON GRANITE CO., LTD., 21 New Walk, Leicester. (Tel.: 56682.) Quarry near St. Neots. (Tel.: St. Neots 300.) Square, N.W.1. (Tel.: Amb. 1141.)
GRAVEL HILL SAND QUARRIES, LTD., Prior Park, Ashby-de-la-Zouch. (Tel.: Ashby 79.) Works: Hartshorne, Derbys. Yellow screened plastering and building sand, all to B.S.S.
HILTON GRAVEL, LTD., Hemington Fields, near Shardlow, Derby. (Tel.: Shardlow 266.)
HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

LEICESTERSHIRE

MOUNTSOREL GRANITE CO., LTD., 21 New Walk, Leicester. (Tel.: 56682.) Quarries at Mountsorel, near Loughborough. (Tel.: pink granite speciality, London Office: 29 Dorset Sq., N.W.1. (Amb. 1141.)
WANLIP GRAVELS, LTD., Wanlip Road, Syston, Leicester. Any size or grading, scientifically balanced ballast. All to B.S.S. (Tel.: Syston 2327 and 2797.)
WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Northamptonshire.)
WREAKE VALLEY GRAVELS CO., LTD., Melton Mowbray. (Tel.: Pits—Rotherby 020 or head office Melton 2488.) All grades washed aggregates and sand.

LINCOLNSHIRE

CONINGSBY SUPPLY CO., LTD., Registered Office: The Broadway, Woodhall Spa, Lincs. (Tel.: Woodhall Spa 3150.) Screened limestone, hardcore, pitching, filling, flint, hoggins. Ex quarries or delivered.
DOV-MAC (PRODUCTS), LTD., Tallington, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)
EAST MIDLANDS BUILDERS' SUPPLY CO., LTD., 21 Castle-dyke West, Barton-on-Humber, Lincs. (Tel.: Barton 2189.) All grades washed sand and gravel, roadstone, hardcore, washed silica sand, all grades.
GIBBONS, F. B. AND SONS, LTD., Registered Office: Welby House, Market Deeping, near Peterborough. (Tel.: Market Deeping 3321/2383.) Pits at Langtoft, near Peterborough. (Tel.: Market Deeping 2210.) All grades washed sand and aggregate.
HARTSHOLME GRAVEL AND SAND CO., LTD., Hartsholme Wood, Doddington Road, Lincoln. Sole selling agents: Hartsholme Sales, Ltd., 17 West Park, Lincoln. (Tel.: Lincoln 23391.)
HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)
HURDIS, J. W. LTD., Victoria Street, Grimsby. (Tel.: Grimsby 3657) and Caistor. (Tel.: Caistor, Lincs., 281.) Building, plastering, concreting sand, also gravel, ballast, hoggins and roadmaking materials.
PETERBOROUGH QUARRIES, LTD., Sandylans, Maxey, Peterborough. (Tel.: Market Deeping 2303—3 lines.) Graded, washed and crushed granite, hardcore and broken stone. (See also Northants.)
POLLARD, C. AND SON (TALLINGTON), LTD., Walk House, Langtoft, Peterborough. Pits at Tallington, near Stamford, Lincs. (Tel.: Market Deeping 2140 and 2141.) Washed sand and aggregates. For "Supercrete" ready mixed concrete, "phone Market Deeping 3132."
TRENT AND GRAVELS, LTD., near Deansgrove, Grimsby. (Tel.: Grimsby 5354.) Washed and graded gravel and sand, roadstone, hardcore, slag, tarmac, ashes, etc. Pits and quarries throughout the county.

LONDON

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)
COX, H. AND SONS, LTD., 33 Southampton Way, Camberwell, S.E.5. (Tel.: Rodney 2215—3 lines.)
DANGERFIELD, F. J. AND CO., LTD., 261A Finchley Road, N.W.3. (Tel.: HAMPSHIRE 8044-8.) Granite limestone or slag, coated or dry, all sizes and pitching, granite kerb and setts, felspar quartz and other minerals by road or rail, or ex London stock.
DORSET LIMESTONES, LTD., Bumpers, East, Dorset. (Tel.: Portland 2207/8.) (For details, see Dorset.)
DRINKWATER, W. W. (WILLESDEN), LTD., Dudden Lane, W. W. (Tel.: N.W. 4005/5.) Pits: Rush Green, Denham, Bucks. (Tel.: Denham 2241/2/3.) Also Staines Road, Hounslow Heath, Middlesex. (Tel.: Hounslow 6222/3.)
GABRIEL, C. LTD., Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.
GREENHAM SAND AND BALLAST CO., LTD., Chertsey Road, Feltham. (Tel.: Feltham 2285/7.) Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.
HALL AND CO., LTD., Chantry House, Eccleston Street, S.W.1. (Tel.: Sloane 7122), and at East Dulwich, Poplar and Wandsworth. Gravel aggregates, concreting, plastering and building sand.
KEEN, W. J. AND SONS, LTD., 18 Granville Road, Epping, Essex. (Tel.: Epping 2520.) All sands, ballasts, shingle and hardcore supplied.
LONDON BALLAST CO., LTD., (Tel.: Paddington 5064.) 55A Porchester Terrace North, Paddington, W.2.
READ, P. T. LTD., Gales Gardens, Bethnal Green, E.2. (Tel.: Shoreditch 9128/9.) All sands, ballast and shingles supplied and delivered; also ready mixed concrete. Pits: Fairlop Airfield, Forest Road, Ilford, Essex. (Tel.: Hainault 6111/2/3.)
ROADS RECONSTRUCTION (1934), LTD., Stockley Lane, West, Uxbridge, Middlesex. (Tel.: West Drayton 3041.) All sizes broken limestone, dry and coated to British Standards.

MERIONETHSHIRE

SALOP SAND AND GRAVEL SUPPLY CO., LTD., Admaston, Wellington (Tel. 961), Salop.

MIDDLESEX

CROSS, GEO. C. AND CO., LTD., Uxbridge Road, Southall. (Tel.: Southall 2264/5/6.) Concrete aggregates, hardcore, excavations, demolitions.
DRINKWATER, W. W. (WILLESDEN), LTD., Staines Rd., Hounslow Hth., Middx. (Hounslow 6222/3.)
GABRIEL, C. LTD., Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.
GREENHAM SAND AND BALLAST CO., LTD., Chertsey Road, Feltham. (Tel.: Feltham 2285/7.) Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.
GRUNDON, S., 79 Harrington Road, Hillingdon, Middlesex. (Tel.: Uxbridge 4156/7.) Sand, ballast, shingle, hardcore, ashes, excavation and demolition.
HALL AND CO., LTD., Chantry House, Eccleston Street, S.W.1. (Tel.: Sloane 7122), and at Ashford, Kent. (Tel.: Ashford 281.) Gravel aggregates, concreting, plastering and building sand.
LONDON BALLAST CO., LTD., (Tel.: Paddington 5064.) 55A Porchester Terrace North, Paddington, W.2.
READ, P. T. LTD., Gales Gardens, Bethnal Green, E.2. (Tel.: Shoreditch 9128/9.) All sands, ballast and shingles supplied and delivered; also ready mixed concrete. Pits: Edmonton, Gravel Pit, Montagu Road, N.9. (Tel.: Shoreditch 9128/9.) and Fairlop Airfield, Forest Road, Ilford (Tel.: Hainault 6111/2/3.)

CONTRACTORS' GUIDE TO AGGREGATES

MIDDLESEX

STUART MACLEY, LTD., Gordon Road, High Wycombe. (Tel.: High Wycombe 2591/2.)

THAMES SAND AND GRAVEL CO., LTD., Fordbridge Road, Shepperton. (Tel.: Walton-on-Thames 23616.) Gravel aggregates, concreting, plastering and building sand.

WRAYSBURY SAND AND GRAVEL CO., LTD., Pits at Wraybury. (Tel.: Wraybury 164.) Gravel aggregates, concreting, plastering and building sand.

MID-WALES

BENGRI AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

NASH ROCKS STONE AND LIME CO., LTD., Prestelgne, Radnor. (Tel.: Prestelgne 352.) (See Herefordshire for details.)

OLD RADNOR TRADING CO., LTD., Quarries in Radnorshire. (Tel.: Kingsland 301/4.) (See Herefordshire for details.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel. 961.) Salop.

TERN HILL SAND AND GRAVEL CO., LTD., Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

MONMOUTHSHIRE

IN-SITU CONCRETE, LTD., Victoria Works, Ebbw Vale (Tel. 3032), and Phoenix Works, Cardiff (Cardiff 63311), for limestone and slag aggregates, ready-mixed concrete, tarmacadam, media, filling, etc., kerbs and pavings.

MONMOUTHSHIRE ASSOCIATED QUARRIES, LTD., Head Office: 38 Chestnut Road, Newport, Mon. (Tel.: Newport 58311/2.) Suppliers of all grades of concrete aggregates, road metalling, pitching stone, tarmacadam and bituminous macadam in limestone, dolomite and blue pennant stone. Quarries throughout the county.

WHITECLIFF QUARRIES AND BRICKWORKS, LTD., Coleford, Glos. (Tel. 3189/9.) (See Gloucestershire.)

MONTGOMERYSHIRE

NASH ROCKS STONE AND LIME CO., LTD., Prestelgne, Radnor. (Tel.: Prestelgne 352.) (See Herefordshire for details.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel. 961.) Salop.

NORFOLK

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: Vigilant 2530.) (For details, see Leics.)

JOHNSON, P. C. H., LTD., Station Road, Terrington St. Clement, near King's Lynn. (Tel.: Terrington St. Clement 248.) Washed and screened gravel, roadstone, washed sand and fine sands.

SHNETTERTON STONE QUARRIES, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamsted 1208/9.) Pits at Shnetterton. Concrete aggregates, building sand.

THORPE GRAVEL PITS, LTD., Harvey Lane, Norwich. (Tel.: Norwich 332434.) Washed and graded aggregates, stone and gravel delivered to all parts of Norfolk and Suffolk.

NORTHAMPTONSHIRE

AMEY'S AGGREGATES, LTD., Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billington, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: Vigilant 2530.) (For details, see Leics.)

BICESTER STONE CO., LTD., Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 236.) Manufacturers and suppliers of all grades limestone tarmacadam, dry, pitching stone, hardcore, etc.

BILLING GRAVEL CO., LTD., Station Road, Billington, Northampton. (Tel.: Cogenhoe 219.) London Office: 21 Berkeley Square, W.1. (Tel.: Mayfair 6341.)

BRAYBROOK, E. W., LTD., Newton Road, Higham Ferrers, Northants. (Tel.: Rushden 3344 and 3345.) All grades of washed and graded aggregates to B.S.S., building sand, hardcore.

DOW-MAC (PRODUCTS), LTD., Tillingham, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)

DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) Producers of building and walling stone roadstone, hardcore, broken stone, ashes, sand, gravel and hoggins. Immediate delivery throughout Northamptonshire.

FERRERSAND AGGREGATES, LTD., Northampton Road Quarries, Rushden, Northants. (Tel.: Rushden 2354/5.) Largest producers in the county of all grades of high-quality concrete aggregate to B.S.S. Delivers throughout Northamptonshire and adjoining counties.

GIBBONS, F. B. AND SONS, LTD., Welby House, Market Deeping, Peterborough. (Tel.: Market Deeping 3321/2383.) (See Lincolnshire for details.)

HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

KETTON STONE CO. (Prop.: Andrew's Garage), Ketton, near Stamford. (Tel.: Ketton 206.) Hardcore, roadstone, crushed stone, top soil, silica clay. Quarries at Ketton.

MACKANESS, A. LTD., Ransome Road, Northampton. (Tel.: Northampton 589.) Producers of all grades of washed aggregates. Building sand. Mixmortar (lime-sand mortar). Prompt deliveries.

NENE BARGE AND LIGHTER CO., LTD., Market Chambers, Peterborough. (Tel.: 5334/5.) and Ship End Quarries, Wansford, near Peterborough. (Tel.: Wansford 384/5.) Roadstone, hardcore, broken stone, ballast, ashes, silica clay and sand.

NEWARK (PETERBOROUGH) SAND AND GRAVEL CO., LTD., 127 Eastfield Road, Peterborough. (Tel.: Peterborough 2091.) All grades washed and screened gravel and sand.

PETERBOROUGH QUARRIES, LTD., Sandylands, Maxey, Peterborough. (Tel.: Market Deeping 2355.) Eight quarries supplying all grades of hardcore and broken stone. Also Wetmix at Yarwell, Wansford. All grades gravel and sand at Maxey.

NORTHAMPTONSHIRE

POLLARD, C., AND SON (TALLINGTON), LTD., Walk House, Langtoft, Peterborough. (Tel.: Market Deeping 2140.) (See Lincolnshire for details.)

STORTON, F. E., LTD., Weedon Road, Northampton. (Tel.: Northampton 3358.) Producers of washed gravel and sand to B.S.S.

WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8.) Largest producers of all grades of washed aggregates in Northamptonshire and Bedfordshire. Regular deliveries anywhere. Local office and pits: Forty Ford. (Tel.: Welford 256.)

NORTH WALES

CAWOOD, WHARTON AND CO., LTD., Pistyll Gwyn Quarry, Llanarmon, near Mold. (Tel.: Llanarmon-yn-Ial 27.) Crushed limestone and tarred macadam, all grades.

CHESSHIRE AND NORTH WALES TARRER MACADAM CO., LTD., Llanarmon, near Mold. (Tel.: Llanarmon-yn-Ial 43.) Hard, broken limestone; dry and coated to B.S.S. Inquiries to Registered Office—Market Chambers, Tower Square, Tunstall, Stoke-on-Trent. (Tel.: Stoke-on-Trent 88094.)

ENSTON BROS., LTD., Llwyn Isaf Quarry, Clynog Fawr, Caernarvon. (Tel.: Clynog Fawr 297/8.) All sizes crushed, washed natural sand and gravel. Highest quality. Precast concrete products, ex our Grifiths Crossing Factory, Caernarvon. (Tel.: Caernarvon 2535/6.) Crushed granite ex our quarry, Pengwern and Gwydyr Quarries, Ltd., Trefriw, Llanrwst, Denbighshire. (Llanrwst 36.)

PENMAENMAWR AND WELSH GRANITE CO., LTD., Quarries at Penmaenmawr. (Tel.: 2256/8.) and at Trevor. (Tel.: Clynogfawr 223.) Caernarvonshire. All sizes and gradings of crushed granite aggregates. Any quantity per day. Immediate delivery ex stock. Coated granite also available.

RUTHIN AND DENBIGH TARMACADAM CO., LTD., Denbigh. (Tel.: Denbigh 75.) Lime, limestone, carbonate of lime, tarmacadam, etc. Also inquiries to Lunt Bros., Ltd., 23 Colmore Row, Birmingham. (Tel.: Central 7408—4 lines), and Lunt Bros., Ltd., Stourbridge. (Tel.: 5201—6 lines.)

TERN HILL SAND AND GRAVEL CO., LTD., Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

NOTTINGHAMSHIRE

AIZLEWOOD, DOUGLAS E., Bow Bridge, Rotherham. (Tel.: Rotherham 2622.) Crushed and graded limestone: all grades of washed gravel and sands.

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: Vigilant 2530.) (For details, see Leics.)

GLEN QUARRIES, LTD., Central Chambers, Wellgate, Rotherham. (Tel.: Rotherham 5223.) Crushed and graded stone, concreting sand, building sand, plastering sand and crushed gravel; could be collected ex quarry or delivered.

GUNTHERPE GRAVELS (1958), LTD., (Tel.: Nottingham 77357; and Works: Loughborough 2131.) (An associate company of C. Campbell, Ltd.) All grades washed gravel and sand to B.S.S.

HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Market Deeping 3321.) Quarries at Hoveringham, Holme, Plerpount Colwick, Bleasby and Newark. All grades of washed gravel and sand to any specification. Crushed quartzite for surface dressing of roads a speciality. Plant capacity 8,000 tons per day.

NEWARK GRAVEL AND CONCRETE CO., LTD., Grove Street, New Balderton, Newark, Notts. (Tel.: Newark 401.) All grades washed sand and aggregates.

NORTH NOTTS. GRAVEL CO., LTD., Beilmoor, Bedford. (See Yorkshire.)

PRESTWICK, WILLIAM, AND SONS, LTD., Dronfield, Derbyshire. (Tel.: 2204—6 lines.) Dry and coated Derbyshire limestone and slag for all purposes and to all specifications. "Haddon" foamed slag blocks.

SALISBURY AND WOOD, LTD., Matlock. (Tel.: 272/273.) (For details, see Derbyshire.)

OXFORDSHIRE

AMEY'S AGGREGATES, LTD., Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billington, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: Vigilant 2530.) (For details, see Leics.)

BENGRI AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

BICESTER STONE CO., LTD., Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 236.) Manufacturers and suppliers of all grades limestone tarmacadam, dry, pitching stone, hardcore, etc.

CURTIS, J., AND SONS, LTD., Bait Works, Oxford. (Tel.: Oxford 41081/2/3.) Sand and all grades of washed aggregates. Pits at Radley, near Abingdon. (Tel.: Abingdon 441.)

DANGERFIELD, F. J., AND CO., LTD., 261A Finchley Road, London, N.W.3. (Tel.: Hampstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)

DIX, G. H., AND SON, LTD., Freeland, Oxon. (Tel.: Freeland 234.)

DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) (See Northamptonshire.)

GRUNDON, S. (EWELEME) LTD., Eweleme, Oxon. (Tel.: Eweleme 210.) London Office (Tel.: Uxbridge 4156.) All grades washed aggregates. Path hoggins, broken stone, building sand.

HAINES, H. (WITNEY), LTD., Oxford Road, Witney. (Tel.: Witney 42.) All grades washed aggregates, hardcore, pitching and broken stone, Cotswold building and walling stone.

SHNETTERTON STONE QUARRIES, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamsted 1208/9.) Roadstone, Cotswold building and walling stone.

WRAYSBURY SAND AND GRAVEL CO., LTD., Theale, Reading, Berks. (Tel.: Theale 373.)

RADNORSHIRE

BENGRI AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

CLEE HILL TRANSPORT AND ROLLING CO., LTD., Ludlow, Salop. (Tel.: Cleehillstone 284.) (See Shrops.)

RADNORSHIRE

NASH ROCKS STONE AND LIME CO., LTD., Prestelgne, Radnor. (Tel.: Prestelgne 352.) (See Herefordshire for details.)

OLD RADNOR TRADING CO., LTD., Quarries in Radnorshire. (Tel.: Kingston 11.) (See Herefordshire.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel. 961.) Salop.

RUTLAND

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THE INDEX TO DISPLAYED ADVERTISEMENTS WILL BE FOUND ON PAGE 1288

April 7, 1960, to June 30, 1960.

[illegible]

F	PAGE	L	PAGE	R	PAGE
Ferguson House, Marylebone Road, London	1521	London Salvage Corps, New City Headquarters for	1381	Roads, 15-year Programme Urged by F.C.E.C. Chairman	210
Finsbury Park, £300,000 Railway Maintenance Depot	849	London Traffic Survey to be Undertaken	1656	Roads, Construction of Stamford By-pass	77
Fire Research, International Co-operation in	1381			Roads Improvement Association Annual Report	1145
Fire Resistance Tests on Structural Elements, Sponsored	1661	M		Roads, Lancaster By-pass Completed	208
Footbridge, Aluminium Alloy	428	Machrihanish Air Station, Large-scale Earthmoving Involved in NATO Project	845	Roads, Memorandum on Standards for Carriageway Markings	992
G		Management, Training for, L.M.B.A. President's Comments	420	Roads, Works Programme for the Marble Arch/Hyde Park Scheme	553
Gatwick, Timber Hangar at	845	Manchester Airport Contract for Costain	846	Roller, Self-propelled Pneumatic Tyred Rotherham By-pass, Proposed	702
George Washington Bridge Bus Station, New York	1167	Manchester City Surveyor's Annual Report	83	R.I.B.A. President Attacks Land Speculators	1518
Germany, Two-stage Biological Sewage Treatment in	1663	Manchester's Piccadilly Centre, Work Begun on	425	Russian Excavator, Model E-302 Imported	1169
Goodenough Introduce 2in. Diesel-powered Pump	1667	Marble Arch/Hyde Park Project, Italian Excavation Method to be Used	847	Ruston-Bucyrus 30RB Transit Machine	1667
Grain Store, Rapid Erection of Poole	312	Marble Arch/Hyde Park Scheme, Work Programme for	553	S	
Greenham Ready Mixed Concrete Plant, Fulham	1542	Margam Rail Marshalling Yard Opened	415	Safety Centre, Scotland's First Opened	1377
H		Medway Bridge Contract	1508	St. Lawrence Project Judged Engineering Achievement of Year	85
Hampstead, Branch Post Office Incorporated in Redevelopment	83	Merseyside, Contract for B.M.C. Factory	420	Schools, New Look for Village	699
Heating and Ventilating Research Association's New Laboratory	561	Mineral Working, Control of	843	Scotland's First Safety Centre Opened	1377
Hebridean Islands Linked by 5-mile Roadway	412	Modular Co-ordination—15 Countries Meet in London	847	Seam-welder for Storage Tank Construction, Automatic	1666
Hoddesdon, Herts., Laboratory for Merck, Sharpe and Dohm, Ltd.	1139	Modular Co-ordination in Building, Work of BSI Technical Committee ..	76	Sewage Disposal Works, Wallingford R.D.C. Scheme Completed	1373
Holman Vole Drill Adapted for Motorway Work	89	Morden 14-storey Development	78	Sewage Treatment in Germany, Two-stage Biological	1663
Hospitals, Planning and Building New ..	1147	Morris 14-ton Series IV Truck	429	Sheffield Housing Estate Development, Work Starts on Woodside Scheme ..	76
Housing, Bristol's Position Similar to 1939	551	Muir-Hill 2WL Loader with Sherman Power Digger	429	Sherman Power Digger on Muir-Hill 2WL Loader	429
House-Building Industry, Land Crisis in, N.F.B.T.E. Report Calls for Immediate Action	1509	Muir-Hill Loaders, New Range of ..	565	Skid-resistance Tester, Use of the Portable	1145
Housing Densities Examined at Building Research Station	1516	Multiform Construction, Arcon's	561	Sludge Disposal, Research into Problems Urgent	1516
Housing, Manchester Programme in Arrears	83	N		Slum Clearance, Minister Urges Speed-up of Scottish	1145
Hydraulics Research, British Committee Formed	223	N.F.B.T.E. Report on Land Crisis	1509	Soil Stabilisation Plant for Cementation, Trav-L	87
I		N.F.B.T.E. Representatives on Government Bodies and Joint Boards	223	Southwark Church, Reinforced Concrete Ceiling for	1375
Imperial Chemical Industries, Severn-side Works Contract for Wimpey ..	552	National Federation of Building Trades Operatives Annual Conference	1514	Sports Stadium, Western Nigeria's £400,000	225
Institute of Builders, Presidential Address	552	National Federation of Demolition Contractors, Annual Luncheon	78	Stafford By-pass Contract	1656
Institute of Public Cleansing, Presidential Address	1523	Newcastle-under-Lyne, 15-storey Blocks of Flats in Slum Clearance Scheme ..	993	Stag Brewery Project Approved	996
Institute of Sewage Purification, Presidential Address	1516	New York, George Washington Bridge Bus Station	1167	Stamford By-pass, Construction of ..	77
Institution of Civil Engineers, Annual Dinner	423	New York, Major Arterial Improvements in, Three Bridge Projects Under Construction	1403	Stepney Swing Bridge Project, £132,808 ..	81
Institution of Municipal Engineers, Presidential Address	1369	Northampton, Clearing Department for Barclays Bank	1517	Stevenage By-pass, Martin Cowley's Contract	558
Institution of Structural Engineers, Election of President and Council	1254	Northern Ireland Government Offices, Higgs and Hill Contract	558	Sydney Expressways, U.S. Engineers to Design	708
Institution of Water Engineers, Presidential Address	999	Nuclear Reactor Containment Buildings, Symposium on	1653	T	
International TD-25 Blades and Cable Control Units	226	Nyasaland Water Supply Scheme, £900,000 Grant for	876	Tariff Barriers, Machinery Importers' Chairman Attacks	559
J		O		Teamwork in Building, East Anglian Architects, Quantity Surveyors and Builders in Conference	211
J.C.B. 4 Supersedes Hydra-Digga/Loadall	853	Operatives, Security of Employment for	1254	T.V. Studio Completed, Europe's Largest, by N. H. Bovey	69
Jetty Renewal, Time and Cost Cut in Thames	557	P		Texas Instruments' Bedford Factory, Hyperbolic Paraboloid Roof Shells and Lift-slab Floors	1253
Jetty, Unusual Soil Conditions Involved in Scottish Scheme	701	Painting Contractors Warned Against Price Cutting	993	Thames Jetty Renewal, Time and Cost Cut in	557
Joint Consultation in Building, Conference With Regional Chairmen	1144	Palisades Airport, Jamaica, Lighting System	707	Thirlmere Aqueduct, Reconditioning of Timber Hangar at Gatwick has 150ft. Clear Span	845
K		Passenger Conveyor, Aluminium Alloy Pavings Development Group Visit to U.S.	836, 984, 1133	Timber Roof, Largest Hyperbolic Paraboloid	1372
Kariba Hydro-Electric Project, Inauguration of First Stages	871	Pin High Cranes Market Twin Hoist ..	1262	Timber Roof, Unusual Design, at Carmel College, Oxon	703
Keirby Hotel, Burnley, Construction of ..	1140	Pipeline, Central Europe's Fuel	1539	Tractor, Flameproof Diesel Hydraulic Mines	1022
Kingsferry Bridge Opened	315	Plymouth, Design of the Laira Bridge ..	1255	Traffic-bearing Structures, Code for Pavings Published	1658
L		Poole Grain Store, Rapid Erection of ..	312	Truck, Morris, 11-ton Series IV	429
Laira Bridge, Plymouth, Design of	1255	Porth Reservoir, Cornwall	1511	Tunnel Shaft, Binding Chain for Thames ..	224
Lancaster By-pass Completed	208	Precast Concrete, International Congress on	1518	U	
Land Reclamation, Technical Problems of, Now Largely Solved	556	Premix Batching Plant at Aylesbury ..	227	Ulster Animal Feed Mill, Piling a Major Problem	75
Leeds, 10-storey Dwellings at Holbeck Moor	1145	Prestatyn Sea Wall	1515	United Africa House, London	693
Leeds-Sheffield Motorway, Design Quibble	999	Priestman Introduce New ½-yd. Excavator	1665	United States, British Highway Engineers and Contractors in ... 836, 984, 1133	
Loader, Allis-Chalmers TL16D Available in U.K.	567	Prison Building Programme, Government's £20m.	1657	V	
Loaders, New Range of Muir-Hill	565	Public Cleansing Service, Challenge of the Future	1523	Vibrating Rollers, New Allam Range ..	567
Loch Awe Hydro-Electric Scheme, Mitchell Construction's Contract	420	Pump, 12in. Univac	89	Village Schools, Remodelling Programme Going Ahead	699
London Airport, £7m. B.E.A. Engineering Base	989	Q		W	
London Airport, Construction of Ariel Hotel	81	Queensferry Bridge and By-pass, Tenders Invited	218	Wallasey Ferry Terminal, Renewal of Wallingford Sewage Disposal Works Completed	1373
London Airport, Work Begins on £3m. Passenger-handling Building	214	R		War Department Schedule of Prices ..	552
London-Birmingham Motorway Symposium	839, 552, 695	Radcliffe Committee's Report, N.F.B.T.E. Study Group's Views	549	Water Pollution Research in 1959, Increasing Activity at D.S.I.R. Laboratory	1652
London-Brighton Road, Modernisation of ..	71	Railways, Construction of "Dive-under" Line, Colchester	701	Water Resources, Overall Control of, Problem Still Remains	999
London Building and Civil Engineering Contractors Accident Prevention Group, Election of Officers	552	Rapier 1520 Mobile Crane	226	Welsh Medical Teaching Centre, Architectural Competition Result	996
London College of Architecture and Building	314	Rapier Grab-crane Installed on Thames-side	1383	Westminster College Buildings Completed in Oxfordshire	995
L.C.C. Equipment Centre Building, "Propped-cantilever" System Used in ..	221	Redevelopment, The Problems of	703	Westminster, Revised Stag Brewery Project Approved	996
London Master Builders Association, Luncheon for Lord Mayor	420	Reinforced Concrete Association, President Appeals for Professional Support ..	1376	Windscale Contract for Mitchell Construction	552
London Ring Motorway Proposed by B.R.F.	419	Retention Money, L.M.B.A. Vice-president's Comments	1142	Windscale Nuclear Reactor Poses New Constructional Problems	1137
		Road and Rail Bridge Across Channel ..	219	World Power Conference for Australia, 1962	1168
		Road Construction, Keen Competition in ..	1382		
		Road, Modernisation of London-Brighton ..	71		
		Road Research Laboratory Courses, 1960-61	994		
		Road Research Laboratory, Crowthorne Road Safety Research Track ..	1371		
		Road Roller Drivers' Wages, Increase in	850		



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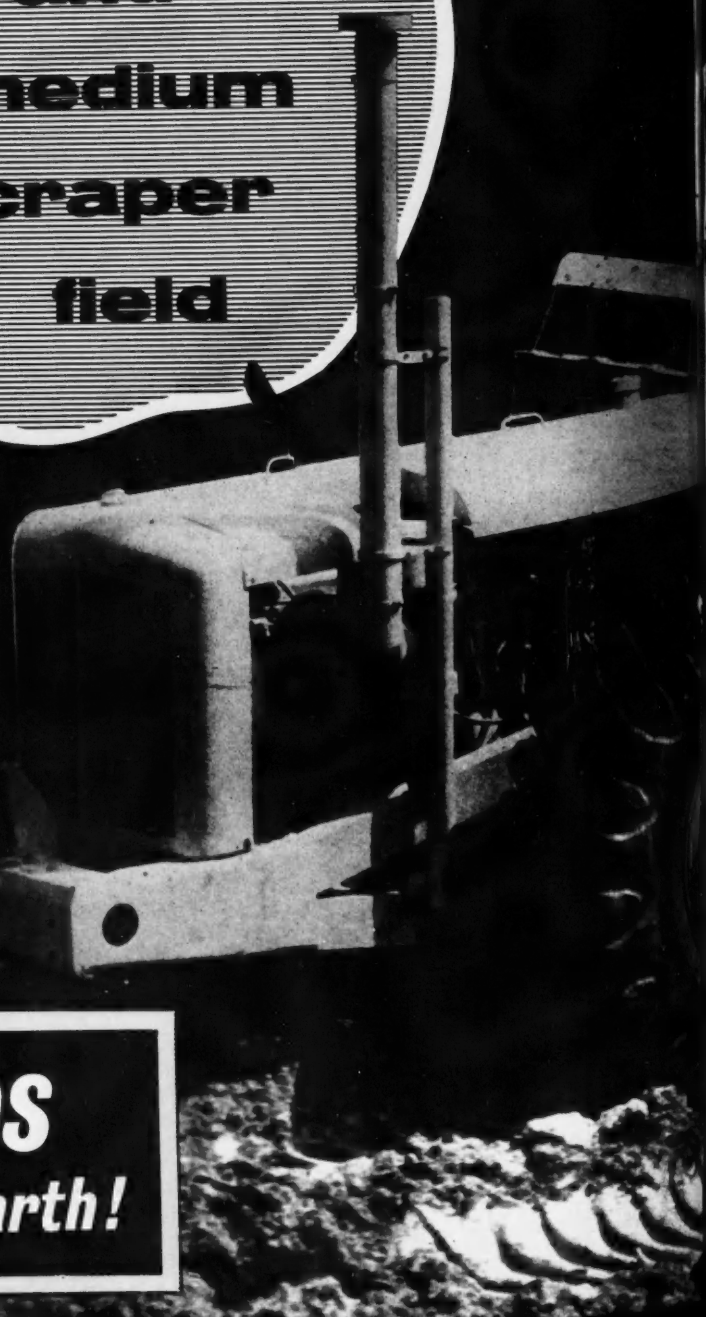
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